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ABSTRACT

This study was conducted to identify outcomes and to produce information to support them for vocational education selected from the myriad of outcomes ascribed to it by various publics. From a list of 252 outcome questions, the project staff, selected personnel from the National Center for Research in Vocational Education, and vocational educators identified 18 outcomes on the basis of their historic importance, contribution to individuals, contribution to the improvement of social relations, contribution to the production, development and management of material wealth, and likely importance in the future. Then, six experts in the fields of history, philosophy, psychology, sociology, economics, and futurism wrote papers that supported or rejected each of the 18 outcomes. On the basis of evidence presented in the papers, the following outcomes are supported for vocational education: upgraded occupational competencies, acquisition of useful occupational skills, retrained workers, development of safe work habits, and satisfactoriness to employers. The following outcomes are not strongly supported: increased job satisfaction, increased potential for entrepreneurship, increased awareness of need for basic academic skills, and placement in jobs related to training. Finally, these outcomes are not supported at all by the papers: enhanced leadership capabilities, positive work attitudes, motivation for achievement, trained workers for labor market needs, improved quality of work, enhanced job advancement, increased productivity, reduced dropout rate, and increased earnings. The study has implications for federal and state legislation concerning outcomes for vocational education programs. (KC)

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SELECTED EVIDENCE SUPPORTING OR REJECTING EIGHTEEN OUTCOMES FOR VOCATIONAL EDUCATION

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1983

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FOREWORD

Increasingly, vocational educators have been asked to serve diverse clientele with a multiplicity of programs in complex and diverse settings. The outcomes expected of these efforts have been as varied and numerous as the imagination allows.

Throughout the history of vocational education, attention especially in the early years, has been focused on goals and expected outcomes. Perhaps in recent years, when our programs have been confronted with the new challenges of rapid technological advancements and rapid increases in enrollments, we have neglected to focus sufficient inquiry on outcomes.

Selected Evidence Supporting or Rejecting Eighteen Outcomes for Vocational Education provides the vocational education community with information essential to identifying outcomes, but there is no intent to indicate that this should be the only input. Failure to consider additional information would most likely result in inappropriate identification of outcomes.

The findings from this study should be useful to researchers, evaluators, and vocational education program directors engaged in identifying and selecting outcomes for vocational education or investigating the foundations of vocational education.

The National Center expresses its appreciation to the paper authors: John O. Crites, Research Professor, Kent State University; Rupert N. Evans, Professor of Vocational Education, and Paul Violas, Associate Dean, College of Education, University of Illinois; Mary B. Malone, Professor of Vocational-Technical Education, Rutgers, The State University; Harold G. Shane, University Professor of Education, Indiana University; David W. Stevens, Professor of Economics, University of Missouri; and John F. Thompson, Professor of Continuing and Vocational Education, University of Wisconsin. The National Center is also indebted to the vocational educators who reviewed the papers: Ann Bennington, University of Arizona; Aleene Cross, University of Georgia; William Drake, Cornell University; Patrick O'Reilly, Virginia Polytechnic Institute and State University; Allen Phelps, University of Illinois; Donald Richardson, Colorado State University, Frank Santoro, Rhode Island State Department of Education; and Nellie Thorogood, San Antonio Community College.

The National Center is indebted to the staff members who worked on the study. The study was conducted in the Evaluation and Policy Division under N. L. McCaslin, Associate Director. Floyd L. McKinney, Senior Research Specialist, served as Project

Director and Patricia Fornash as Graduate Research Associate. Dr. McKinney, a former secondary vocational education teacher, holds a Ph.D. in vocational education from Michigan State University. He has served as a coordinator of graduate vocational education programs and as a division director in a state department of edcuation. Ms. Fornash is a docotoral candidate in vocational education at The Ohio State University and has a M.S. in Higher Education from the University of Kentucky. Other National Center staff assisting with the study were: Ida M. Halasz, Research Specialist; Irene Morrison, Program Associate; and Priscilla Ciulla, Secretary. Final editorial review of this report was provided by Michael Wonacott and Janet Kiplinger of the National Center's Editorial Services area.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

Study Objectives

A multitude of outcomes for vocational education have been identified in the literature and by various publics. The goal of this study was to produce information that could be used in determining the support for selected outcomes expected of vocational education. The objectives of the study were--

- to identify outcomes, for vocational education appropriate for--
  - --secondary programs including selected special needs groups,
  - --postsecondary programs, including selected special needs groups; and
- to develop a rationale and specifications supporting each of the outcomes identified in the preceding objective.

Study Procedures

From a list of 252 outcome questions the project staff, selected National Center personnel, and selected vocational educators outside the National Center identified eighteen outcomes on the basis of their (1) historic importance; (2) contribution to the unique attributes of the individual; (3) contribution to the improvement of social relationships among individuals; (4) contribution to the production, development, and management of material wealth for the individual, business/industry, or country; and (5) likely importance in the future.

Six individuals selected for their expertise in the fields of history, philosophy, psychology, sociology, economics, and futurism were commissioned to write papers that presented the fundamental truths, theories, concepts, and major findings that could be used to support or reject each of the eighteen outcomes. The commissioned papers were reviewed by selected National Center staff and a small group of invited participants in a working conference with the authors of the papers.

Study Limitations

This study of outcomes for vocational education was a limited effort concerning an exceedingly complex problem. The

reader is advised to interpret the conclusions in light of the following limitations of the study.

- o The evidence presented in the papers represents only one set of inputs needed to identify outcomes expected of vocational education.
- o The information presented in the papers represents the perspective of the individual authors. Other perspectives should be considered when identifying outcomes.
- o The goals for vocational education, are diverse, complex, and varied among program areas. No attempt was made in this study to link the multitude of goals with outcomes.
- o The degree to which the attainment of an outcome could be measured was not a consideration in determining the appropriateness of outcomes to be included in this study.
- o Some authors did not present evidence for each of the eighteen outcomes.
- o The study considered a limited number of outcomes. Individuals or specific groups may prefer to include other outcomes.

Support for the Outcomes

On the basis of information presented in the six commissioned papers the project staff determined whether the evidence supported or rejected the eighteen outcomes. The reader is reminded that additional information must be considered in identifying outcomes for specific programs operating in varying contexts.

On the basis of evidence presented in the papers, the following outcomes are supported for vocational education at the secondary and postsecondary levels.

- o Upgraded occupational competencies
- o Acquisition of useful occupational skills
- o Retrained workers

On the basis of evidence presented in the papers, the following outcome is supported when measured at the conclusion of the individual's vocational education program.

- Development of safe work habits and techniques

On the basis of evidence presented in the papers, the following outcome is supported for secondary and postsecondary vocational education when measured within six months after program completion and when vocational education completers are not compared with other workers.

- Satisfactoriness to employers

On the basis of evidence presented in the papers, the following outcomes are not strongly supported for vocational education at the secondary and postsecondary levels.

- Increased job satisfaction
- Increased potential for entrepreneurship
- Increased awareness of need for basic academic skills
- Placement in job related to training

On the basis of evidence presented in the papers, the following outcomes are not supported for vocational education at the secondary and postsecondary levels.

- Enhanced leadership capabilities
- Positive attitude toward work
- Motivation for educational and occupational achievement
- Trained workers for labor market needs
- Improved quality of work
- Enhanced job advancement
- Increased productivity
- Reduced dropout rate
- Increased earnings

Given the limited acceptable evidence presented in the papers, it was considered inappropriate to make judgments on the relevance of the eighteen outcomes for special needs groups.

Implications

Implications for vocational education policymakers and decision makers at the federal, state, and local levels were formulated on the basis of the evidence presented in this report. The implications are as follows:

- Federal and state legislators should identify a minimum number of outcomes to be expected of vocational education. It is unreasonable to hold any program accountable for a multitude of outcomes.

- Outcomes identified for a program should complement each other. In the past the accomplishment of certain outcomes resulted in less accomplishment of other outcomes.

- State and local agencies should have flexibility in selecting outcomes. Policymakers and decision makers at the state and local levels are in a better position to select outcomes congruent with the specific situations in which their program operate.

- Local vocational educators, in cooperation with other selected individuals, should identify the goals of their programs and specify a limited set of outcomes. A vocational education program can not do all things for all people.

- Policymakers and decision makers at all levels need to give careful study and consideration to the problem of identifying outcomes based solely on traditional acceptance or on their assumed relevance to the latest political initiatives. Each vocational education program is unique in structure and in setting. The outcomes expected of a vocational education program should reflect its uniqueness.

- Policymakers and decision makers at the federal and state levels should designate funds for inquiry concerning the development of a contemporary rationale for vocational education to serve as a basis for identifying program goals and outcomes.

PART I

EVIDENCE SUPPORTING SELECTED OUTCOMES FOR VOCATIONAL EDUCATION

In this chapter the procedures used in conducting the study are described and a summary of the evidence supporting or rejecting eighteen outcomes for vocational education is presented.

NEED FOR THE STUDY

In reviewing the literature and in communicating with the various publics concerned with vocational education, one can identify a multitude of outcomes expected of vocational education. Farley (1979) identified 252 questions, posed by various individuals or groups, on the expected outcomes for vocational education. It is impossible for any individual, at any level of responsibility, to incorporate in any logical or rational way that many expectations into a given program.

Policymakers and decision makers are becoming increasingly aware that vocational education is made up of a broad range of programs. These programs operate in diverse and complex settings frequently with multiple outcome expectations. For policymakers and decision makers concerned with overall policy for vocational education, additional concern is raised by the diversity of expectations among the program areas in vocational education. This diversity increases the difficulty of ensuring that policies and decisions are equitable for all concerned.

The identification of outcomes expected of vocational education should involve many considerations, including goal derivation and selection, contextual specification of the socio-economic setting, identification of client characteristics and expectations, and labor market needs. In addition, careful consideration should be given to the extent to which the expected outcomes can be supported by fundamental truths, theories, concepts, and major findings from fields such as sociology, psychology, history, futurism, economics, and philosophy. Such evidence should provide a strong basis for the identification of appropriate outcomes to be expected of vocational education.

STUDY OBJECTIVES

The overall goal of this study was to produce information that can be used in supporting or rejecting the appropriateness

of selected outcomes expected of vocational education. The objectives of the study were--

1. to identify outcomes for vocational education appropriate for--

   a. secondary programs, including selected special needs groups,

   b. postsecondary programs, including selected special needs groups; and

2. to develop a rationale and specifications supporting each of the outcomes identified in the preceding objective.

PROCEDURES

Discussed in this section are definitions, the procedures used to identify the outcomes, the procedures used to commission the papers, and the details of the working conference; limitations of the study are also discussed.

Definitions

Outcomes as defined by Darcy (1979) are "the consequences of vocational programs;" these may be "intended or unintended, positive or negative, short-term or long-term, economic or noneconomic, direct or indirect" (p. 11). A goal is the object toward which the vocational education program is directed or toward which individuals in the program direct their actions and efforts. In many instances the relationship of certain outcomes to goals will be obvious; in other instances the relationship will not be clear. The goals for vocational education vary greatly from one situation to another and can be highly diverse within a given program area in one school building.

Identification of Outcomes

An early and important task for the project staff was to identify a limited number of outcomes expected of vocational education. It was thought that about twenty outcomes would be all that the project staff and the authors of the papers could consider thoroughly. Work done earlier at the National Center (Farley 1979) had resulted in the identification of 252 outcome

questions.[1] The project staff determined the importance of each of the 252 outcome questions according to the following criteria:

1. Historic--Was the outcome important in the past?

2. Individualism--Is the outcome important in contributing to the unique attributes of the individual?

3. Societal--Is the outcome important in contributing to the improvement of social relationships among human beings?

4. Economic--Is the outcome important in contributing to the production, development, and management of material wealth for the individual, business/industry, or country?

---

[1]The National Center has conducted a number of studies concerning outcomes for vocational education. An extensive review of the relevant literature is contained in documents reporting these studies. The reader is encouraged to review the following:

- McKinney, F.L.; Gray, K.E.; and Abram, M. Interpreting Outcome Measures in Vocational Education: A Final Report. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1978.

- Darcy, R.L. Some Key Outcomes of Vocational Education: A Report on Evaluation Criteria, Standards, and Procedures. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1980.

- Bolland, K.A. Vocational Education Outcomes: An Evaluative Bibliography of Empirical Studies. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

- Darcy, R.L. Vocational Education Outcomes: Perspective for Evaluation. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

- Farley, J. Vocational Education Outcomes: A Thesaurus of Outcome Questions. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

- Taylor, C.M.; Darcy, R.L.; and Bolland, K.A. Vocational Education Outcomes: Annotated Bibliography of Related Literature. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1979.

5. Futuristic--Will the outcome be important in light of projected trends and developments.

By giving each outcome question a high, medium, or low rating for each of the above criteria, the project staff identified thirty-one outcome questions as most appropriate for consideration in the study.

For each of the thirty-one outcome questions, the project staff developed an explanatory statement, and examples of outcome attainment, and they identified the appropriateness of the outcomes for secondary and postsecondary groups, including selected special needs populations. The wording of the outcome questions was also changed to state expected outcomes.

The thirty-one outcomes, including the explanatory material, were shared with other National Center staff and nine selected vocational educators who were not staff members at the National Center. These respondents were asked to judge the importance of the thirty-one outcomes according to the previously stated criteria: historic, individualism, societal, economic, and futuristic. From this rating of the outcomes eighteen were selected for consideration in the study. A complete explanation of the outcomes is provided in Appendix B.

Some of the outcomes are societal in nature, some are institutional, and some are individual. No attempt was made to limit the number of outcomes that were societal, institutional, or individual in nature. The following listing of the outcomes is random and does not indicate any ranking of importance or significance of one outcome in comparison to another outcome.

- Increased awareness of need for basic academic skills
- Satisfactoriness to employers
- Trained workers for labor market needs
- Motivation for educational and occupational achievement
- Placement in a job related to training
- Acquisition of useful occupational skills
- Positive attitude toward work
- Increased productivity

- o Development safe work habits and techniques
- o Increased earnings
- o Enhanced leadership capabilities
- o Upgraded occupational competencies
- o Increased potential for entrepreneurship
- o Enhanced job advancement
- o Increased job satisfaction
- o Improved quality of work
- o Retrained workers
- o Reduced dropout rate

Commissioned Papers

The major purpose of the papers was to provide evidence from substantive fields that supports or rejects the appropriateness of each of the eighteen outcomes. Six individuals were selected by the National Center staff to write the papers. The substantive fields selected were history, philosophy, psychology, sociology, economics, and futurism. The authors were asked to present the fundamental truths, theories, concepts, and major findings that can be used to support or reject each of the outcomes. On the basis of the evidence supporting or rejecting the outcomes, the authors were asked to show the linkage of the evidence to each of the outcomes, including a rationale that upholds the use of the evidence to support or reject the outcomes. The following authors were selected for their expertise in the substantive field as well as their knowledge of vocational education.

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Paul Violas
Associate Dean
College of Education
University of Illinois
Champaign, Illinois

Working Conference

The working conference provided an opportunity for invited participants to critique the papers and to interact with the authors. The objectives of the working conference were as follows:

1. To critique the papers on evidence supporting or rejecting specified outcomes of vocational education,

2. To identify major evidence either supporting or rejecting each of the eighteen outcomes, and

3. To specify those outcomes most appropriate for vocational education.

The conference was held August 19 and 20, 1982 at the National Center. Where possible, the papers were distributed to the participants prior to the conference. At the conference, buzz groups, question and answer sessions, and work groups were used to promote group interaction and to ensure that each individual had an opportunity to provide input. A copy of the working conference agenda and a list of the participants is provided in Appendix A.

The invited participants and selected National Center staff had an opportunity to raise questions about each author's paper. These questions and the author's responses are included in Part II of this report. In addition, the invited participants were asked to submit written critiques of the papers. These critiques were shared with the six authors for consideration in the revisions they made in their papers.

Limitations

The reader is cautioned that the evidence presented in this report represents only one set of input needed by those who are engaged in making decisions and policy resulting in the identification of outcomes expected of vocational education. This caveat in no way minimizes the significance or power of the evidence presented in this report; it merely serves to remind us as vocational educators that there are a multitude of other inputs needed in identifying outcomes.

The identification of outcomes sparks heated debates among vocational educators and its varied support groups. Historically, there has been little agreement among vocational educators as to what outcomes should be expected. Vocational education has never had a single spokesperson or a prevalent view regarding outcomes and it is doubtful if it will in the future.

No attempt was made to relate the expected outcomes to goals. A more logical approach to the study of outcomes would include the development of a rationale for vocational education that would serve as the basis for identifying goals. The goals would then serve as a basis for identifying appropriate outcomes.

Outcomes expected of vocational education vary greatly in the degree that their attainment can be measured in strictly quantifiable terms. Different audiences also need varying degrees of specificity in measuring attainment of outcomes. The degree to which the attainment of an outcome could be measured was not a consideration in determining the appropriateness of outcomes to be included in this study.

Some authors of the commissioned papers failed to develop their papers around the eighteen outcomes and/or failed to present evidence as requested. This shortcoming resulted in inadequate evidence in certain areas.

In each of the fields represented by the authors there are a multitude of perspectives from which the papers could have been developed. Some papers were developed by authors using only one perspective. Other writers using other perspectives might reach different conclusions.

The list of eighteen outcomes does not include many outcomes that other individuals might rank highly. As indicated in one commissioned paper the list of outcomes does not include some of the important outcome desireds: by early advocates (who expect vocational education to lead to improvement of the work place), by legislators (who see the achievement of equity through vocational education as a prime goal), and by practitioners (who

are more concerned with maintenance or expansion of enrollments and the solution of daily problems than with grand designs).

SUMMARY OF EVIDENCE

The evidence supporting or rejecting the outcomes presented in this section is drawn from the six papers and is reported for each of the eighteen outcomes. A more detailed analysis of the evidence supporting or rejecting the outcomes is presented in each of the papers in Part II.

The eighteen outcomes were judged by the project staff to be supportable on the basis of evidence presented in the six commissioned papers. Judgements by the project staff were made on the basis of the following criteria: (1) power and substance of the evidence presented by authors (e.g., studies respected by peers and theories and findings generally accepted by scholars in the field), (2) recency of evidence presented by the authors, (3) number of authors supporting the outcome, and (4) number of citations an author used to support the stance taken. Staff judgements were most influenced by the power and substance of evidence presented in the papers. While weight of opinion was an important consideration (for example, when five authors supported an outcome and only one rejected the outcome), it was deemed much more important to consider the significance of the evidence presented in each of the papers.

It is important to note that the authors of the commissioned papers were asked to focus on the eighteen outcomes and to present evidence from their field that supported or rejected the outcomes. The papers prepared by Malone (sociology), Thompson (philosophy), and Shane (futurism) are closely aligned with the intended focus of the papers. Stevens (economics) addresses three of the outcomes specifically and presents a rationale for not addressing the other outcomes. Evans and Violas (history) chose to focus on the outcomes that have been significant in the development of vocational education. Crites (psychology) presents some evidence, but focuses mainly on an alternative scheme for identifying outcomes. Because of this variation in the content of the papers, it was not possible to quote all of the authors when summarizing the evidence for each outcome.

In the following section, each of the eighteen outcomes is stated and explained. Evidence on each outcome from the papers of the six authors is compiled. Then the judgment of the project staff on the appropriateness of the outcome for vocational education is presented.

Outcome: Increased Awareness of Need for Basic Academic Skill

Explanation of Outcome

Students participating in the application of mathematics, reading, and writing in a work related experience increases student awareness of the need for learning these skills.

Evidence Presented in the Papers

Thompson indicated that the experimentalist could support the outcome on the assumption that increased awareness is a natural consequence of one's participation in vocational education. Making a "logical inference," Thompson assumed that vocational educators are generally concerned about the growth of students and that basic skills are not ends in themselves but a means to student growth.

Labeling the outcome a secondary if not a tertiary objective of most vocational education, Malone considered the outcome an indirect consequence of instruction. Malone indicated that the evidence on the emergence of awareness was very limited and that for the most part it would have to be inferred from theories of motivation.

Increased awareness of the need for basic academic skills according to Shane is now more widely recognized and stressed than at any time since the era of the debates to which Bestor, Rickover, Flesch and others contributed in the early 1930s.

Stevens contended that this outcome raises an exceedingly complex issue. He suggested that the measurement of the students' awareness of the need for basic academic skills and the response to this awareness must be accomplished before the outcome is to be appropriate and reasonable.

On the basis of the evidence presented in the papers, increased awareness of need for basic academic skills is not strongly supported as an outcome for vocational education.

Outcome: Satisfactoriness to Employers

Explanation of Outcome

Participation in vocational education results in employers considering former vocational education students to be well trained and prepared for employment.

Evidence Presented in the Papers

The experimentalist, according to Thompson would have no difficulty supporting the notion that the result of education should be satisfactoriness to employers, providing that employers are not the dominant group. Thompson also favored satisfactoriness to parents, government leaders, political groups, and other community leaders. He contended that a more basic question from a perspective of human development perspective is "How satisfactory is the student for life?"

Malone contended that satisfactoriness to employers is a secondary rather than a primary objective of the large majority of vocational education programs. The socialization that the employing oraganization imposes on each new worker led Malone to infer that workers skills rarely dovetail with the unique processes and procedures of a specific employer. Malone also questioned whether teachers would know these or unique employer variations be able to incorporate them into their instruction. Because of the socialization that workers undergo when they enter the work place Malone felt it unwise to measure satisfactoriness of workers for more than six months after a student completes a program.

Shane expressed the view that satisfactoriness to employers may be increased because of more skillful use of micro-computers in the classroom. However, Stevens questioned the advisability of suggesting that vocational education completers should exhibit differentially high ratings in satisfactoriness to employers.

On the basis of evidence presented in the papers, satisfactoriness to employers is supported as an outcome when measured within six months after program completion and when vocational education completers are not compared with other workers.

Outcome: Trained Workers for Labor Market Needs

Explanation of Outcome

Participation in vocational education assists individuals in acquiring occupational skills necessary to fill the employment needs of business and industry.

Evidence Presented in the Papers

Thompson noted that vocational educators have historically interpreted this outcome with a narrow focus on labor market

needs. Therefore the emphasis has been on shaping an individual to meet the needs of the labor market. Thompson contended that this is a vary narrow view and that vocational education should not develop an unbalanced individual, one prepared to participate in one aspect of society but not necessarily in other aspects.

Shane questioned whether a clear picture of future labor market needs can be sketched. He suggested several fators that could complicate a reading of labor market needs: the extent of unemployment as of mid-1982, ambiguity in government policies, substantial global military actions that threaten world peace and could lead to a military draft, and the extraordinary way in which the microchip and robotics are permeating the work place.

Malone contended that vocational education programs have as a primary objective the transmission of useful occupational skills, so that students enrolled will be trained for jobs available in the labor market.

The basic point, according to Stevens is that substitutability among types of individual attributes is not well understood. Stevens contended that nonuniformities abound in employer behavior and that the definition of labor market "need" is fraught with ambiguity.

On the basis of evidence presented in the papers, trained workers for labor market needs is not supported as an outcome for vocational education.

Outcome: Motivation for Educational and Occupational Achievement

Explanation of Outcome

Participation in vocational education programs increases and strengthens student incentive for educational and occupational achievement.

Evidence Presented in the Papers

In Thompson's judgment the experimentalist can support this outcome. The experimentalist would hope, however, that motivation would extend beyond educational and occupational achievement. Thompson would hope for an ingrained attitude on the part of the worker as he or she lives out his or her life in society with meaning, enrichment, fulfillment, happiness, and motivation as a result of educational activities.

Malone considered the outcome to be an important but secondary objective of vocational education. In determining the appropriateness of the outcome she expressed reservations about the limited knowledge of ways to develop and/or change attitudes and the limited effect school personnel have on aspirations and attitudes. Further concern was expressed when Malone indicated that considerable evidence suggests that aspirations and attitudes are molded substantially by social origins and the resulting familial and significant other relationships.

Stevens noted that motivation presumably flows from perceived opportunity (with and without vocational education), and he doubted that motivation can arise from by accurate insight.

On the basis of evidence presented in the papers, motivation for educational and occupational achievement is not supported as an outcome for vocational education.

Outcome: Placement in a Job Related to Training

Explanation of Outcome

Students completing a vocational education program are employed in jobs that are related to their training.

Evidence Presented in the Papers

Thompson contended that this outcome is troublesome to the experimentalist because it is narrowly conceived. If the end of the curriculum is a job for which society or some company in society has a need, and, if we evaluate that program on the basis of whether or not the student actually got the job, then the experimentalist has difficulty both with the ends and the means. The difficulty is not that people need to work or that students who complete vocational education get jobs. The difficulty according to Thompson is the narrowness with which that concept is pursued.

The link between education and the first job is comparatively strong according to Malone. However, she cautioned that variablity of employment opportunities and the macroforces affecting employment opportunities make this a questionable outcome unless placement is a primary objective of a program and specific activities are designed and implemented to accomplish placement.

Evans and Violas noted that the stress on training-related employment as a criterion of success in vocational education encourages creaming, not only in terms of school achievement, but

also in terms of physical ability. The physically handicapped, according to Evans and Violas, are often seen by vocational educators as hard to place and hence detrimental to good evaluations.

Shane suggested that the outcome of placement in jobs related to one's vocational training faces a troubled future. The problem seems to center around the difficulty of training for specific skills in a rapidly changing society where it is difficult or impossible to predict job requirements for the next ten to fifteen years.

Stevens indicated that if skill enhancement is an important direct outcome of vocational education, and if the immediate use of these skills is an important intermediate conduit to higher earnings, and if an appropriate classification of training-relatedness is available, then this outcome is appropriate. But Stevens cautions that a high training-related placement rate may indicate a limited range of applicability of the skills learned.

On the basis of evidence presented in the papers, placement in a job related to training is not strongly supported as an outcome for vocational education.

Outcome: Acquisition of Useful Occupational Skills

Explanation of Outcome

Students in vocational education develop those occupational skills necessary to perform adequately the job for which training was provided.

Evidence Presented in the Paper

Malone suggested that any program called "vocational education" has as a primary objective the transmission of useful occupational skills, so that students enrolled will be trained for jobs available in the labor market. According to Malone, curricula within high schools do contribute to both the allocative and socializing functions of youth by the social organization of the curriculum, if not by the pedagogy. The expectation of parents, youth, employers, and community for specific, even if "ritualistic," redefinition from unskilled to skilled (as posited in the allocation-credentiating theory) supports the position that educational attainment is among the more powerful factors contributing to job status.

Because of the rapid changes probable in employment due to the microchip, Shane indicated it is difficult to predict the appropriateness of the outcome. Similarly Stevens indicated that the acquisition of skills could be ascertained, but noted that whether the skills are "useful" is somewhat more subjective.

On the basis of evidence presented in the papers, acquisition of useful occupational skills is supported as an outcome for vocational education.

Outcome: Positive Attitude Toward Work

Explanation of Outcome

Participation in vocational education results in former students having a positive feeling for their work and respect for the rules of the work place.

Evidence Presented in the Papers

From the viewpoint of the experimentalist Thompson, had no difficulty supporting this outcome, assuming that the individual's education contributes to positive attitudes about a number of other things as well as toward work. Shane contended that positive attitude toward work is related to motivation and that motivated workers are likely to have positive attitudes toward their jobs, but he questioned the extent that workers will be motivated in years to come. The problem of self-selection raised by Stevens reminds us that those who do not have positive attitudes are less likely to be working.

Malone noted that positive attitude toward work is an objective of vocational education but that it is in the affective domain and less amenable to formal instruction. She contended that positive attitudes toward work are too heavily influenced by family and by peers with similar values and comparable socio-economic status. Further, Malone contended that many of the attitudes are acquired early in life and that people are not easy to change.

On the basis of evidence presented in the papers, positive attitude toward work is not supported as an outcome for vocational education.

Outcome: Increased Productivity

Explanation of Outcome

Participation in vocational education results in former students being more productive workers than those individuals who did not participate in vocational education.

Evidence Presented in the Papers

Thompson objected to this outcome rather strongly. His basic disagreement with the outcome was that it is undemocratic--that is, it goes against the nature of our culture. He contended that to support the outcome is to agree that education should ultimately produce one class of workers, one class of citizens, that are better and more productive, than those of another class.

Shane indicated that increased productivity is generally forecast, but he suggested it depends upon whether the de-industrialization which has occurred in Britian occurs in the United States.

Stevens indicated that the methodological problems are so great that mixed results are reported concerning worker productivity. He raised two important questions: "How is this to be measured, independent of coworker and organizational affiliation influences? Is productivity embodied in each individual, to be carried around from place to place, or is it embodied in each unique job setting, to be accessed by whoever wins incumbency?"

On the basis of evidence presented in the papers, increased productivity is not supported as an outcome for vocational education.

Outcome: Development Safe Work Habits and Techniques

Explanation of Outcome

Participation in vocational education results in workers' learning procedures and techniques needed to ensure safety on the job.

Evidence Presented in the Papers

From the viewpoint of the experimentalist, Thompson assumed that as part of any instructional program workers would acquire the habits and techniques of safety that are needed on the job. Shane noted that the development of safe work habits and

techniques seems to be an attribute beyond dispute, but he cautioned that our complex technological society may generate hidden hazards that will require the worker to constantly refine safe work habits and techniques.

The problem of simultaneity was addressed by Stevens. Correlates of safety, such as alertness, attitude, physical dexterity, and so forth may, also be correlates of the decision to participate in a vocational education program.

Malone concluded that developing safe work habits and techniques was appropriate when measured at the conclusion of occupational training. She judged the outcome inappropriate when used six months or later after job placement because of the importance of the physical conditions under which workers perform and the importance of the work group in setting informal rules about work.

On the basis of evidence presented in the papers, development of safe work habits and techniques is supported as an outcome for vocational education only when measured at the conclusion of the individual's vocational education program.

Outcome: Increased Earnings

Explanation of Outcome

Participation in vocational education increases the wages or salaries of workers.

Evidence Presented in the Papers

Assuming that participation in vocational education should lead to increased earnings creates problems for the experimentalist, according to Thompson. The outcome is undemocratic, he says, and is against the basic nature of our culture to design an educational program that gives one group of citizens an advantage over another.

Malone did not support increased earnings as an outcome because she considered them indirect rather than a direct outcome of vocational education. In addition, she cited evidence that earnings are influenced considerably both by industry specific effects that vary for occupations and by the amount of education in the total spectrum and class position. She found no significant differences in wages between employed drop-outs and high school graduates or between earnings in the primary or secondary labor markets, internal or external labor markets, and unionized or non-unionized sectors.

While supporting increased earnings as an outcome, Shane cautioned that the relationship among increases in wages, taxes, withholdings, and inflation must be carefully assessed. He also indicated that in view of the finite resources of the planet, the projected population increases, and the pressure from less developed countries for a larger share of material goods, this outcome could be modified sharply during the 1990s and beyond.

Stevens indicated that at issue is a proper specification of the earnings function. He highlighted several problems of measuring increased earnings and concluded that no reliable evidence about the impact of vocational education on earnings is available.

On the basis of evidence presented in the papers, increased earnings is not supported as an reasonable outcome for vocational education.

Outcome: Enhanced Leadership Capabilities

Explanation of Outcome

Participation in vocational education enhances an individual's capacity to be a leader.

Evidence Presented in the Papers

Thompson believes that developing leadership skills has been interpreted by vocational educators to mean that whatever innate leadership ability the individual has can be further developed through the individual's participation in a vocational education program. From the stance of an experimentalist, Thompson supported the concept that enhancing the innate leadership capabilities of individuals are enhanced by the life situations that they find themselves in.

Malone suggested that the development of leadership skills is a specific objective only of the vocational education clubs such as DECA, VICA, and FFA and that it is at best only indirectly related to the development of occupation-specific skills. Malone concluded leadership capabilities could not be supported as an outcome for vocational education because of several factors. Participation in vocational education clubs is voluntary and the majority of Americans do not belong to formal community and civic organizations. Participation in voluntary associations is directly and consistently associated with socioeconomic status and a smaller percentage of younger individuals than older individuals is involved. Personality variables and attitudes interact in voluntary associations chosen. The

traits of a leader that seem to be necessary and effective in one group or situation may be quite different from those of another leader in a different setting; finally, certain minimal abilities may be required of all leaders, but these traits will also be widely distributed among nonleaders.

Capabilities may be increased, according to Shane, but he questioned the availability and characteristics of the opportunities in the next twenty years. Shane stressed that leadership capability based on knowledge may become obsolete.

On the basis of evidence presented in the papers, enhanced leadership capabilities is not supported as an outcome for vocational education.

Outcome: Upgraded Occupational Competencies

Explanation of Outcome

Students in vocational education acquire skills that are needed to stay current or advance on the job.

Evidence Presented in the Papers

Thompson indicated that the experimentalist holds that education is growth, never ending. Noting the students constantly have goals before them, Thompson explained that as these goals are operationalized and achieved, they become means to achieve other goals. Thus, truly educated persons inevitably would learn to upgrade their occupational skills.

Malone supported specific programs designed either to upgrade skills within the same occupation when significant changes in technical processes or job differentiation takes place or to retrain workers whose skills have become obsolete and employment requiring those skills is no longer available. Upgrading occupational competencies was supported by Shane indicated that it must be an outcome of vocational education or the field would lose its meaning and direction. Shane also suggested that emerging technofutures in America mandate upgraded competencies.

On the basis of evidence presented in the papers, upgraded occupational competencies is supported as an outcome for vocational education.

Outcome: Increased Potential for Entrepreneurship

Explanation of Outcome

Skills acquired in vocational education increase the potential of former students to organize, operate, and assume the risk for business ventures.

Evidence Presented in the Papers

Thompson captured the prevailing viewpoint of the authors when he indicated that it was very difficult to determine the intent of vocational educators regarding entrepreneurship as an outcome. Thompson seems to support the outcome if entrepreneurship is not the preferred outcome.

Evans and Violas contended that program areas such as agriculture have traditionally trained for entrepreneurship. Malone noted that the primary objective of most vocational education programs is preparation in occupational skills, so it is unreasonable to hold vocational education accountable for a secondary objective of increased potential for entrepreneurship.

Further doubt was cast on the appropriateness of this outcome when Shane suggested that the potential for future entrepreneurial activity is uncertain because of numerous social decisions not yet made. Stevens questioned that increased potential for entrepreneurship was a desirable outcome for vocational education more than for any other preparatory program.

On the basis of evidence presented in the papers, increased potential for entrepreneurship is not strongly supported as an outcome for vocational education.

Outcome: Enhanced Job Advancement

Explanation of Outcome

Participation in vocational education results in workers having the skills and abilities that will enhance their prospects for advancing on the job.

Evidence Presented in the Papers

In Thompson's view, the experimentalist cannot support a type of education that basically says that if you complete this educational program you will have an advantage over persons who have not had this experience.

Malone cited studies showing that education is only slightly more strongly related to occupation at a later time than if first job. Among the factors that lead to advancement on the job, Malone cited the following: the importance of ability and aptitude for educational attainment and adult socioeconomic status; the importance of structural variables, such as differential opportunities for advancement as reflected in specific industries, primary and secondary labor markets, internal and external labor markets; the evidence of boundaries to vertical movement within occupations; the limitations on the number of advancements available in relation to the number of workers with potential for promotion; the impact of seniority and union negotiated guidelines; the difficulty of assessing workers performance. Finally, economic progress of individuals and families appear to be due to life contingencies and the chance and risk factors that exist for each person.

Shane suggested the outcome is inappropriate because of the difficulty of forecasting whether workers will be more highly motivated in the future. He indicated that entitlement programs have reduced the threat of want that motivated workers eighty years ago and that bright prospective workers may lack motivation as they realize that there may not be enough affluence to go around.

According to Stevens, it is virtually impossible to document a connection between vocational education and subsequent promotional experience.

On the basis of evidence presented in the papers, enhanced job advancement is not supported as an outcome for vocational education.

Outcome: Increased Job Satisfaction

Explanation of Outcome

Participation in vocational education provides students with cognitive, affective, and psychomotor competencies that contribute to their fulfillment or gratification on the job.

Evidence Presented in the Papers

Thompson supported this outcome from the viewpoint that the experimentalist would hold that education is growth, that one education experience leads to another.

The consistent evidence of generally high levels of job satisfaction expressed by all workers; the consistent evidence

that job satisfaction increases with the degree of skill and responsibility a job entails and that professional and managerial workers consistently have the highest satisfaction, with clerical and manual workers intermediate in satisfaction, and unskilled lowest; the evidence that employed drop-outs have the same level of jobs satisfaction as employed high school graduates; the relationship between age and job satisfaction; the significant relationship between job satisfaction and other dimensions of life satisfaction; and the correlation between acceptance by the work group and job satisfaction--given all these factors, Malone concluded that vocational education is a minor contributing variable to job satisfaction in the immediate, near, and distant future from the time of program completion.

Shane suggested that increased job satisfaction could come about as a technological society facilitates production and provides greater leisure. He cautioned, however, that technology could continue to dehumanize the work place and create dissatisfaction as a consequence.

Crites indicated that individuals exposed to vocational education that emphasized career development as well as skill acquisition had increased job satisfaction. But Crites cautioned that there are numerous variables contributing to an individual's job satisfaction.

On the basis of evidence presented in the papers, increased job satisfaction is not strongly supported as an outcome for vocational education.

Outcome: Improved Quality of Work

Explanation of Outcome

Participation in vocational education results in former students being able to do excellent work in the jobs for which they were trained.

Evidence Presented in the Papers

Holding that education is never static, never ending, Thompson supported this outcome. From this viewpoint, a truly educated person would be highly sensitive to their environments or contexts and would want to improve the quality of their work.

Malone suggested that a review of the literature on the achievement of ambitions does not support the outcome. Indicating that the outcome is appropriate, Shane nevertheless cautioned that a variety of factors, such as worker morale,

foreign competition, and employers' policies, can impair the best efforts of vocational educators to uniformly enhance the quality of work done by their former students.

On the basis of evidence presented in the papers, improved quality of work is not supported as an outcome for vocational education.

Outcome: Retrained Workers

Explanation of Outcome

Vocational education provides programs for those persons who need to acquire skills for a new occupations.

Evidence Presented in the Papers

Thompson suggested that education is growth and that one educational experience leads to another. Workers are sensitive to their environments and generally perceive the need to change their skills as they see their environment change.

While indicating that retrained workers is a vital outcome of vocational education, Shane cautioned that we cannot count on a surprise-free future. The expectation that vocational education can retrain workers may pose one of the greatest challenges vocational educators will face. The need for qualified technicians and specialists may increase rapidly at a time when the precise nature of training needs is uncertain.

On the basis of evidence presented in the papers, retrained workers is supported as an outcome for vocational education.

Outcome: Reduced Dropout Rate

Explanation of Outcome

Participation in vocational education results in secondary students and postsecondary students remaining in school until they have achieved their goals.

Evidence Presented in the Papers

As Thompson noted, it is difficult to oppose reducing the dropout rate. Vocational educators, for the most part, believe that participation in educational endeavors contributes to the enhancement of individual and societal goals. Vocational educators generally encourage students to remain in school.

Malone indicated, however, that a number of factors can be a potent counterforce to vocational education's reduction of the dropout rate: ability level and educational attainment, parents' educational attainment, time at which delinquency occurs, and the number of siblings.

Evans and Violas indicated that although vocational educators have tried to select the "more desirable" students, vocational education enrollment can be characterized as low in verbal ability and socioeconomic status. Evans and Violas indicated that vocational education was very effective in preventing high school dropouts until 1970. Although vocational education has reached many potential dropouts, a quarter of the school population drops out before any significant amount of vocational education is available to them. Stevens suggested that reduced dropout rate may be the most difficult of the eighteen outcomes to isolate and link to vocational education.

On the basis of evidence presented in the papers, reduced dropout rate is not supported as an outcome for vocational education.

SUMMARY

Support for Outcomes

On the basis of evidence presented in the papers, the following outcomes are supported for vocational education at the secondary and postsecondary levels.

- o Upgraded occupational competencies
- o Acquisition of useful occupational skills
- o Retrained workers

On the basis of evidence presented in the papers, the following outcome for vocational education is supported when measured at the conclusion of the individual's vocational education program.

- o Development of safe work habits and techniques

On the basis of evidence presented in the papers, the following outcome is supported for secondary and postsecondary vocational education when measured within six months after program completion and when vocational education completers are not compared with other workers.

- o Satisfactoriness to employers

On the basis of evidence presented in the papers, the following outcomes are not strongly supported for vocational education at the secondary and postsecondary levels.

- o Increased job satisfaction
- o Increased potential for entrepreneurship
- o Increased awareness of need for basic academic skills
- o Placement in a job related to training

On the basis of evidence presented in the papers, the following outcomes are not supported for vocational education at the secondary and postsecondary levels.

- o Enhanced leadership capabilities
- o Positive attitude toward work
- o Motivation for educational and occupational achievement
- o Trained workers for labor market needs
- o Improved quality of work
- o Enhanced job advancement
- o Increased productivity
- o Reduced dropout rate
- o Increased earnings

Appropriateness of Outcomes for Special Needs Groups

Extremely limited evidence (by only three authors) was provided in the commissioned papers for determining the appropriateness of specific vocational education outcomes for special needs groups.

Evans and Violas suggested that it is an undesirable outcome for a vocational education program if women, minorities, handicapped or disadvantaged persons are enrolled in any proportions markedly less than their proportions in the general public. The assumption is that there is discrimination against persons from all these groups. Evans and Violas found that vocational education has responded to the legislative mandate to increase the enrollment of those who are more difficult to educate and to

place in higher paying jobs. This development has lowered job placement rates and earnings.

Stevens reported that studies show initial large gains to women taking commercial courses, but that these gains decline over time. Course work in home economics was associated with a significant decrease in income throughout the period 1972 to 1979, for all women, but especially for black and Hispanic women. Stevens, Gustman and Steinmeier (1980), and Meyer (1982) have noted the weaknesses of earnings data and have cautioned users of such data to be aware of the many problems centering on time-sensitivity of earnings comparisons and weak definitions of vocational education graduates. Stevens noted that he did not address the "target group" (i.e., the aged, disadvantaged, handicapped, minorities, and women) because the evidence was not sufficient to make credible statements.

The Blau and Duncan (1967) study cited by Malone analyzed the influences that different variables exert on occupational achievement and how the variables "modify" the effects of social origins on these achievements. Blau and Duncan (1967) reported that "occupational position is not identical either with economic class or prestige status, but it is closely connected with both, particularly the former . . . Occupational structure in modern industrial society not only constitutes an important foundation for the main dimension of social stratification but also serves as the connecting link between different institutions and spheres of life, and therein lies its significiance" (1967, pp. 6-7).

Relative to sex differences, Foner (1979) noted that women are somewhat less likely to have voluntary association memberships than men, but they appear to spend as much time on organizational activity as men. Married employed women are an exception in that they spend less time in organizational activity than housewives, married men, or single men and women.

Wright and Perrone (1977) suggested that class position has a strong influence on the extent to which education affects income. These expectations and related questions pertaining to relationships for women and blacks within and between class positions were tested on data collected in 1969 from a national random sample of 1,533 adults sixteen years of age and older, and on data collected in 1973 from a national random sample of 1,496 adults. Wright and Perrone (1977) indicated that education and age account for slightly more than 15 percent of the variance in income, that occupational status explains about 4 percent of the variance, and that class position accounts for slightly over 9 percent of the variance.

Relative to returns from education, Wright and Perrone (1977) concluded that returns to each unit of education within

the managerial category are greater than within the working class category, even when education, occupational status, age, and job tenure are controlled. They also noted that employers have greater income than either managers or workers; the returns per unit of education for small employers are much greater than for workers and managers; and within class categories, the income gap between races tends to be much smaller than between the sexes.

Some studies cited by Kalleberg and Sorenson (1979) have found no substantial differences in income returns to education between blacks and whites within detailed occupational categories. Stolzenberg (1975) emphasized the point, however, that discrimination in all likelihood has occurred in selecting who would be promoted to specific detailed occupational categories. Another study cited found that primary-sector occupations are more likely to experience increases in the proportion of workers of a particular sex. Katz and Kahn (1978) illustrated, as did Miller and Form (1980), that social considerations including race, ethnicity, and socioeconomic backgrounds can influence decisions on promotions.

Because of the papers' limited evidence relating special populations to the specific outcomes, the project staff decided it would be inappropriate to make judgements concerning support for the outcomes for special needs groups.

IMPLICATIONS

Implications for vocational education policymakers and decision makers at the federal, state, and local levels were formulated on the basis of the evidence presented in this report. The implications are as follows:

- Federal and state legislators should identify a minimum number of outcomes to be expected of vocational education. It is unreasonable to hold any program accountable for a multitude of outcomes.

- Outcomes identified for a program should complement each other. In the past the accomplishment of certain outcomes resulted in less accomplishment of other outcomes.

- State and local agencies should have flexibility in selecting outcomes. Policymakers and decision makers at the state and local levels are in a better position to select outcomes congruent with the specific situations in which their programs operate.

- Local vocational educators, in coopereation with other selected individuals, should identify the goal of their programs and specify a limited set of outcomes. A vocational education program cannot do all things for all people.

- Policymakers and decision makers at all levels need to give careful study and consideration to the problem of identifying outcomes based solely on traditional acceptance or identifying outcomes based solely on their assumed relevance to the latest political initiatives. Each vocational education program is unique in structure and in setting and it operates in a unique setting. The outcomes expected of a vocational education program should reflect its uniqueness.

- Policymakers and decision makers at the federal and state levels should designate funds for inquiry concerning the development of a comtemporary rationale for vocational education to serve as a basis for identifying program goals and outcomes.

SUGGESTIONS FOR FURTHER STUDY

The study of outcomes expected of vocational education should be a contining effort. Vocational education operates in a context that changes rapidly. Vocational educators must be certain that outcome expectations for vocational education reflect these changes in appropriate ways.

Throughout the history of vocational education, numerous expectations have been made in regard to the individual, to society in general, and to the vocational education program. These expressions have reflected viewpoints of sociologists, economists, philosophers, psychologists, and many others. Vocational education means many things to many individuals. It operates complex programs at many educational levels in extremely diverse settings. It may be unrealistic to expect that one simple list of outcome statements will be relevant for all programs in all settings.

Given this context for vocational education programs, the following suggestions are made for further study.

- A logical relationship should exist between program goals and outcomes. It is obvious that considerable attention needs to be devoted to identifying the goals of vocational education. But the fact that vocational education is composed of several program areas, each giving varying emphasis to certain goals,

results in critical problems of goal identification. The identification of goals should involve a broad range of individuals representing diverse perspectives. The process used to identify the goals should be anchored strongly in the philosophical base on which vocational education is built.

- Part of the problem inherent in goal identification is that most of the philosophical writing on vocational education was done prior to and immediately after the passage of the Smith-Hughes Act. If scholarly efforts are to be made in goal identification, there must be considerable attention given to the explication of a contemporary rationale for vocational education.

- Many of the outcomes considered in this study or identified by other individuals and groups have been economic in nature. In reality, schools are not industrial conglomerates turning out products. To continue to state outcomes as though the educational enterprise is based on an economic model and to continue to apply the economists' research standards to the measurement of these outcomes is not congruent with the philosophical base for education. Outcomes expected of vocational education need to be consistent with the conceptual framework for vocational education. Once the outcomes have been identified, then researchers and evaluators need to develop and/or select methods and techniques that are conceptually consistent with the philosophical framework for vocational education and with the outcome undergoing inquiry.

- Much of the evidence concerning outcomes that is presented in the literature is useful only at one specific level of policymaking. As Stevens so clearly noted, the user must be sure of the question to be answered and of the appropriate unit of analysis for answering the question. Considerable attention needs to be given to specifying appropriate questions, inquiry methods, and procedures.

- Some outcomes may be appropriate and reasonable but unrealistic in terms of cost. Shane suggested that the selection of outcomes to pursue should be based not only on the basis of contemporary social and occupational indicators, but also on the basis of probability-difficulty analyses.

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PART II

COMMISSIONED PAPERS

INTRODUCTION

There are many perspectives that should be considered in identifying outcomes expected of vocational education. In this chapter, the papers prepared by six individuals are presented. The papers present evidence from history, philosophy, economics, sociology, futurism, and psychology perspectives that either support or reject eighteen outcomes expected of vocational education.

The evidence presented in these papers represents significant information to be used by policymakers and decision makers as they identify the outcomes expected of vocational education at local, state, and federal levels. While many other factors must be considered in identifying expected outcomes, it is reasonable to suggest that there should be evidence from history, philosophy, economics, sociology, futurism, and psychology that would support the selection of outcomes.

In the first paper, Rupert N. Evans and Paul Violas provide a historical account of changes in the expectations for vocational education outcomes. John F. Thompson examines philosophy for ideas and ideals that support or reject the appropriateness of each of the eighteen outcomes in the second paper. David W. Stevens, in the third paper, focuses on the consistency of the outcomes with the role(s) that economic theory assigns to vocational education and on the relative importance that each outcome is accorded by the evidence accumulated to date. In the fourth paper, Mary B. Malone reviews the theories, concepts, data, and research findings from sociology and relates these to the outcomes. Harold G. Shane, in the fifth paper, identifies technological developments and social changes and relates their significance to the eighteen outcomes. Finally, in the sixth paper, John O. Crites analyzes the outcomes by focusing upon how they can be sequenced along the career development continuum in a psychologically meaningful manner.

HISTORY OF CHANGES IN OUTCOMES EXPECTED OF VOCATIONAL EDUCATION

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Introduction

The validation of outcomes to be expected of any societal activity is difficult. Darcy (1980, p. 2) says, "There is no simple way to 'validate' outcome criteria apart from a simplistic appeal to authority (whether by legislative mandate or opinion surveys)." Perhaps a better, though admittedly not simple, way of validating expected outcomes is to examine history to see who is advocating which outcomes for whom. Changes in such advocacy over time should help to show us why these outcomes are being advocated and thus provide a type of context validity.

First, however, we should point out a distinction between expected (or proposed or hypothesized) outcomes and actual outcomes. Farley (1979, p 4) calls the former "outcome statements" or "outcome questions" and the latter "outcomes." She identified 252 outcome questions, most of which seem reasonable. But it seems clear that most of them have never been posed other than rhetorically, and even fewer have been answered. Indeed, trying to answer this many outcome questions boggles the mind. This paper and the group of eighteen statements to which we are to respond deal with expected--not actual--outcomes.

The early history of proposals for vocational education is full of expected outcomes for such programs. Rarely, however, were there proposals that these outcomes be tested, let alone suggestions as to how they should be tested. Instead, each argument for vocational education flowed from a description of a problem. This was followed by a proposed solution--one type of vocational education. It was assumed that development of a program that was designed to attack a problem was outcome enough.

Almost all of the emphasis was on assessing process rather than outcome. It was assumed that all would be well if the advisory committee were structured in a particular way, if the students were trained for a particular number of hours, and so on. Conversely, it was assumed that the program would be inadequate if these standards were not followed.

In the early days, these standards were set largely by the National Society for the Promotion of Industrial Education (NSPIE). During the 1920s they were set by Prosser and the

Federal Board of Vocational Education, most of whose members came from NSPIE. Different standards were established for agriculture, for home economics, and for trade and industrial education, but in each case, evaluation was almost entirely a matter of assessing program compliance with these standards.

Experimentation was discouraged by federal authorities, who assumed that maintenance of process standards was essential for the continued survival of the program. Experimentation was assumed to be a ploy by general educators to undermine the quality of vocational education.

Not until vocational educators began to be trained as researchers in the 1950s was there an emphasis within vocational education on testable outcomes. Even today, most of the emphasis on experimentation comes from outside the field. Most vocational educators are more concerned with process variables than with outcome variables. The literature on school accreditation suggests that this concern with process is common among other educators as well.

We were provided a list of eighteen possible outcomes of vocational education and asked to write about their history. One way to do this would require that we report who advocated each outcome, when it was advocated, and more importantly, why it was advocated. A different approach would look at the history of the means by which people and institutions sought to achieve these outcomes and the extent to which they achieved them. A combination of these approaches would seem to be even better.

One problem with the task is that the list of the outcomes we were given represents a view of the evaluation of social programs that has not always been held by many people, especially in the early days of vocational education. This view holds that it is desirable to specify in advance the outcome(s) expected of a program in order to determine more easily the extent to which these outcomes have been achieved.

In contrast, the advocates of vocational education have tended to identify problems of society and of individuals and then to specify which of these problems they felt vocational education could solve. It has been said that to a child with a hammer, everything seems to need hammering. Virtually every human problem has been seen by someone, some time, as being solvable by vocational education. Vocational education has been used for tasks for which it was not designed.

The advocates of vocational education are not alone in their zeal. Advocates of compulsory school attendance, of the comprehensive high school, of competency-based education, and of educational vouchers have seen their particular hammer as being a nearly universal problem solver.

The major problem in looking at the history of outcomes, however, is not the zeal of the advocates of one or more movements in vocational education but their tendency to identify problems rather than outcomes; to assume that the problems would be solved, rather than to assess the extent to which outcomes had been achieved; and to advocate expansion and "fine tuning" of the program, rather than its abolition or major overhaul whenever evaluations produced unfavorable results. Perhaps a key reason for the lack of interest among these advocates in proposing major changes is the fact, that prior to 1970, almost all specification of outcomes and assessment of the attainment of outcomes was done by persons outside of vocational education, and a high proportion of these outsiders were biased against vocational education.

Outcomes that are desired may be inferred from statements of problems, but they are most observable during evaluations. Since few of the early evaluations were done by vocational educators, and, indeed, most were done by critics of the field, it is difficult to infer the outcomes desired by vocational educators. If those who plan and implement an activity seek different outcomes from those who evaluate it, one should not be surprised if the evaluation is negative.

A second major problem is the assumption that all of vocational education does or should have the same outcomes. This assumption shows up most clearly in the legislation of 1963 and subsequent years. Prior to 1963, it was clearly understood that trade and industrial education produced employees, agricultural education produced entrepreneurs, and home economics education produced homemakers. Now it seems to be assumed by nonvocational educators that all should produce employees.

A third major problem is that our list of eighteen outcomes was developed in 1982 by a group of researchers and policymakers. It clearly does not include some of the important outcomes desired: by early advocates (e.g., Lapp and the labor unions), who expected vocational education to lead to improvement of the work place; by legislators, who see achievement of equity through vocational education as a prime goal; and by practitioners, who are more concerned with maintenance or expansion of enrollments and the solution of other daily problems than with grand designs.

Omission of these key outcomes is a serious weakness, and one that we felt we could not overlook. Increased enrollment was and is desired not just to reduce the school dropout rate but also to protect the jobs of vocational educators. Equity was and is desired as a way of both democratizing the work place and saving on welfare costs. Both were and are desired as a means of democratizing the school. Improvement of the work place was and is seen as a way of not only promoting the safety of workers but also of improving the quality of their lives generally.

For these reasons we have elected not to follow the list of outcomes which was given to us, but rather to look at three time frames of vocational education that seem to represent eras in which there was a different stress on outcomes. These three eras are: 1890-1940 (agitation for and implementation of the Smith-Hughes Act), 1940-1963 (war production and the cold war), and 1963-1976 (war on poverty). We seem now to be in a new epoch that might be labeled the "era of international competition," but this is too close to us to be amenable to historical investigation.

Data About Outcomes

The history of vocational education is replete with suggestions by its advocates that certain outcomes would occur-- for example, that trained workers would be supplied to meet labor market demands. It is also replete with predictions from its opponents that other, undesirable outcomes would occur--for example, that students from working class homes would be tracked into vocational education and away from college and the professions. Until well past the middle of the twentieth century, however, neither advocates nor opponents took seriously the task of assessing the extent to which their predictions were coming true.

Prior to 1968, the only substantial national data on vocational education were on enrollments in subject matter areas (e.g., agriculture and home economics). There were no data about enrollments in specialized programs (e.g., welding and retail sales) within these subject matter areas. Even the gross data were suspect and out of date. Each state collected data in its own way and on its own time schedule, usually by asking local schools to submit unaudited figures. Most states collected enrollment headcount figures by class enrollments, so a person who was taking two classes was counted twice. No one knew how many people were completing programs or how much time they spent in class. Every national group that was charged with assessing outcomes (Russell et al. 1938; Willis et al. 1963; Essex et al. 1968) complained about the lack of usable data, but little was done about it.

A logical conclusion is that vocational educators placed a higher priority on operating programs than on testing the outcomes of their programs. But it would also seem to be true that the critics of vocational education were either not interested or ineffectual in forcing vocational educators to test their claims prior to the 1970s. It would appear that both defenders and critics were reasonably happy to make assumptions about outcomes based on logic or exhortations, rather than to test outcomes with data.

1890-1940:

Agitation for and Implemention of the Smith-Hughes Act

The major event in the history of public school vocational education during the first half of the twentieth century was the passage and subsequent impact of the Smith-Hughes Act of 1917. The campaign for its passage forged alliances and organizational structures that remain influential to the present. The act contained provisions that have continued to affect the governance, teacher qualifications, subject fields, curriculum content, and the very definition of vocational education. This has led many students of vocational education to believe that the history of vocational education in modern America is the history of the Smith-Hughes Act. Correctly viewed, however, it should be seen, as is the case with most federal legislation, as a culmination and continuation of previous conditions and of efforts to change them, rather than as a new beginning. For example, it is well to note "the most important vocational lesson of the nineteenth century schools: that economic success was the result of individual character and effort, that cooperation between employee and employer was the norm, and that there was no alternative to the political economy identified as providentially American" (Rodgers and Tyack 1982). A different view of the "most important vocational lesson" was emerging, and more than half of the states had established vocational schools on the new pattern before 1917. The two decades of activity prior to Smith-Hughes set the stage for subsequent rehetoric and development in public school vocational education.

It was during the 1890s and the first two decades of the twentieth century that the full impact of America's emergence as a monopoly corporate-industrial economy was felt in education (Kantor 1982; Violas 1979 Chapter 1). (Monopoly corporations are those which seek to destroy their competitors and establish a national or international monopoly, as opposed to entrepreneurial corporations, which seek to survive on a more limited scale and do not seek to destroy their competitors.) This impact, however, was far from uniform. A variety of differing and, at times, conflicting demands were made on the schools. These demands usually involved a call for vocational programs in the public schools designed to alleviate social and economic problems associated with American economic development. The outcomes most often suggested for vocational education during these early decades were the following: (a) acculturation (i.e., Americanization of the immigrant and urbanization of the rural migrant); (b) reduction of worker alienation; (c) increase in worker skills; (d) elimination of child labor; (e) elimination of the school dropout problem; (f) "democratization" of the high school; (g) decrease in unemployment and underemployment; (h) increase in the economic return to the vocational student as a future worker; and (i) increase in worker productivity, industrial efficiency, and thus

the economic strength of the nation. Unifying nearly all proponents of vocational education was their conviction that the schools should prepare students who would be more effective and productive workers (Cohen 1968; Fisher 1967; Greenwood 1981; Lazerson and Grubb 1974; Miller 1981; Prosser and Allen 1925). Exactly what this meant in practice, however, varied according to the particular part of the economy which provided the vantage point for the proponent.

From the viewpoint of large, bureaucratically organized monopoly firms that had invested heavily in technology and machinery, labor requirements and thus educational demands had a new twist. As Henry Ford made clear, a firm like his required little manipulative or technical skill from the bulk of its workers. They could be semiskilled or even unskilled, but not peasants or others who had a traditional cultural orientation. Many of the workers in these firms were new immigrants or migrants from rural areas of the United States who required acculturation to the time and authority discipline of the modern work place.

It is not surprising, then, that the educational reformers who saw the problem from the vantage of the monopoly capitalists were less interested in development of artisan and manipulative skills than in acculturation of immigrant and migrant workers and the development of "industrial intelligence." This term, roughly translated, meant the mental capacity to work within a bureaucratic authority structure, understanding one's place within the "big picture" and contributing the effort necessary to complete repetitively only a fraction of a total production process. Thus, acculturation and the reduction of worker alientation became important outcomes of vocational education for some educational reformers (Bowles and Gintis, 1976, Part I and II; Braverman, 1974; Hogan, 1982, Ch 6-8).

The labor problem and consequently the educational solution looked somewhat different for those who saw through the eyes of the entrepreneurial capitalist, generally represented by the National Association of Manufacturers (NAM). For them, modernization of plant, machinery, and authority structure had proceeded at a slower pace. They still required many of the older artisan skills and found the struggles with organized labor more threatening. The nonmonopoly sector of the industrial economy desired educational reform to produce "trade school" skills which could compete with and replace the expensive, privately funded, and often union-controlled apprenticeship system as a source of skilled workers. The outcome they sought was a broad range of industrial skills, including respect among workers for the legitimacy of industrial authority and resulting labor peace (Cohen 1968; Cremin 1961; Edson 1978; Krug 1964; Violas 1978).

For "legitimate" and recognized organized labor (i.e., those unions, such as the American Federation of Labor, that accepted the basic structure of modern work and the wage system) the problem appeared somewhat different. Their issues were reluction of unemployment and underemployment, a living wage, and safe working conditions. They feared that vocational education would be used by employers to produce inadequately trained scab replacements for regular apprentices. They generally desired to keep youth in school and out of the labor market for as long as possible and to prevent vocational education from becoming an apprenticeship program. (Cremin 1961; Douglas 1921; Lazerson and Grubb 1974; Violas 1978).

A fourth and still different vantage point was that of the agricultural community. Although rapidly losing its percentage strength in the population and the economy, it retained considerable legislative clout in Congress. This group wished to apply science to agriculture as it believed this had been successfully done in industry and to keep the "cream" of farm youth on the farm by increasing the economic potential of farm life. The agricultural interests lobbied for an agricultural vocational education that would extol the virtues of farm life and teach scientific agriculture and sound farm management (Cremin 1961). They also wanted to develop leadership potential among farm youth so that they could speak effectively for agriculture, especially in nonagricultural circles.

Gender was the fifth perspective from which vocational education was seen. This perspective was related only indirectly to economics. The problem concerned the particular type of vocational education appropriate for females, especially working-class females. While there was a variety of sex-specific occupations deemed acceptable for girls, most commentators believed that the basis of female vocational training should be training for motherhood and homemaking. This aspect assumed a tangential ecoromic dimension as some reformers suggested that a properly trained wife would have important economic consequences for working-class families (Violas 1978).

These last two perspectives on vocational education for homemaking and agriculture occasioned little sustained debate. Rather, it was the first three perspectives and the proposed outcomes for trade and industrial education that engendered conflict with antivocational forces and among the various vocational proponents. The internecine conflict was no doubt the most significant. It reflected ongoing conflicts within the industrial sector of the Smith-Hughes Act and the subsequent structure of public school vocational education.

It was usually the case that specific issues found combatants less neatly arranged than analytic clarity would mandate. And, two additional factors further muddied the waters.

The first of these was that the traditional school people, including many from the manual training movement, entered the debates arguing for "cultural" studies and against "early differentiation." This factor clearly had effect in the New York City system after Superintendent Maxwell's plan for "tenement" district industrial schools for upper elementary children was roughly rebuffed by Calvin Woodward in the national forum of the 1901 National Education Association meeting (Violas 1978). In part, it was also this thrust that occasioned the opposition of the Chicago public school teachers to the Cooley Bill in 1914 and 1915. This issue was complicated, as organized labor in Illinois also opposed the bill because of its alleged class bias and its "dual" system of governance that would set up separate trade schools under a separate school board that labor believed would be dominated by industrial groups. The issue of governance was eventually compromised in the Smith-Hughes Act which allowed for "advisory boards" with labor representation (Lazerson and Grubb 1974; Wirth 1971).

The second complicating factor was the efforts of social reformers, perhaps best embodied in the activities of the settlement house residents. They were generally uppermiddle class, college educated, and often women; their sentiments and motives were to uplift and aid the urban poor. Social reformers, such as Jane Addams, Lillian Wald, Rita Wallach, and Robert Woods, wanted to end child labor, increase school attendance, help immigrants to fit into the American social and economic structure, and generally improve the economic conditions of the urban masses. This, they believed, required some kind of vocational education. As they surveyed the economic scene, these reformers most often saw monopoly industrialism as the progressive wave of the future. Most often they formed alliances with the most progressive of these industrialists and labor leaders in the various local and national civic federations. The social reformers often lent their considerable prestige and social clout to the vocational reforms required by monopoly industry (Violas 1978).

As internecine conflict raged among the various supporters of differing kinds of vocational education, the attempt to merge these diverse interests into an alliance blurred the issues and even the definition of vocational education. An important aspect of this debate has been examined in a recent work by Kenneth Gray (1981). He shows the conflict within the National Society for the Promotion of Industrial Education (NSPIE) from its beginning in 1908. While Gray does not put the conflicts in terms of the perspectives discussed here, he does show that the issues of social efficiency versus a more democratic rhetoric, trade school versus a broader industrial education, and dual versus unitary control were fought within NSPIE between "middle level" manufacturers represented by NAM (characterized here as entrepreneurial capitalists) on one side and their opponents--

organized labor, school people, and other, large scale industrialists (characterized here as monopoly capitalists)--on the other. The result Gray points to is significant. These debates caused a series of compromises in terminology, governance and objectives in an attempt to accommodate diverse interests. The long-term result has been a considerable confusion regarding the desired outcomes of vocational education. This confusion has made the implementation of a coherent vocational education program difficult and the evaluation of outcomes almost impossible.

One is struck by the paucity of discussion of measurability of outcomes in the industrial and vocational education literature prior to the passage of Smith-Hughes. There were many assertions of desirable outcomes but almost no discussion of the manner or even of the desirability or necessity of measuring such outcomes. The history of evaluation of vocational education since the Smith-Hughes Act is replete with charges and countercharges regarding not only the validity of the data base but, more significantly, what it is legitimate to measure. This side of the history of vocational education suggests that Gray is essentially correct in his analysis.

Larry Cuban has noted the difficulty of evaluating the effectiveness of the Smith-Hughes Act. He argues that there were "two major sources of data (and judgments) on the implementation and impact of the law" (1982). These two studies of the Smith-Hughes Act were the works of Charles Prosser and the report of the Russell Commission. Prosser, the guiding force in the NSPIE and the first director of the Federal Bureau of Vocational Education, set up to administer the Smith-Hughes Act, not surprisingly found the act very effective in stimulating a uniform system of vocational education in the states, increasing enrollment in vocational classes, improving teaching, and generally effecting a beneficial vocational result in the nation (Hawkins, Prosser, and Wright 1951; Prosser and Allen 1925).

The Russell Report, written by the Advisory Committee on Education in the late 1930s to evaluate the effect of the Smith-Hughes Act and subsequent federal vocational education acts, such as the George-Deen Act of 1936, developed contrary conclusions (Russell et al. 1938). The report claimed that federal acts to aid vocational education had caused vocational programs to become too rigidly conceptualized and isolated from academic education and had stifled local experimentation. It further argued that there was little evidence that trade and industrial education had yielded any economic benefits. Lazerson and Grubb (1974) blame many of the inflexibilities of vocational education on the 1917 act and saw the Federal Board for Vocational Education as being ineffectual. Russell et al. (1938) saw the board quite differently. They identified several ways in which the board went beyond the Smith-Hughes Act--for example,

requiring a minimum of three consecutive hours a day of vocational instruction and shifting appropriated funds from teacher education to administration.

The conflicting conclusions of Prosser and Russell and the debate over subsequent evaluations of the effects of vocational education emphasize the problem of definition raised by Kenneth Gray. During the decades prior to the passage of Smith-Hughes, proponents of vocational education blurred its definition. One side would not accept "trade training," another rejected "industrial education," and such issues as specific skill training as opposed to "industrial intelligence" went unresolved. Moreover, many of the proposed outcomes were rephrased in somewhat meaningless global terms. For example, all agreed that vocational education should improve the industrial efficiency of the nation, improve the productivity and economic value of individual workers, decrease school dropouts, eliminate child labor, and increase worker satisfaction. But how were these to be accomplished? And how could one evaluate the specific contribution of a particular vocational education initiative or program to these ends? These dilemmas have perplexed the most thoughtful of vocational educators and their supporters during the years following the passage of Smith-Hughes. (They have similarly perplexed historians who have tried to unravel the story of vocational education.) They did not appear to perplex the states, however. By the end of 1918 every state had accepted the Smith-Hughes Act and the obligation to match its funds with state and local dollars.

Little changed during the period from 1918 to 1940. The only serious ripple on the water was an abortive attempt by the federal National Youth Administration (NYA) to establish an alternative secondary school system. NYA helped thousands of students to stay in college by providing them with work, but it overreached itself when it charged that high schools and their vocational education programs were not attentive to the needs of poor youth. The public schools counterattacked by going to the Congress, and NYA disappeared.

Few people noted the depression era beginnings of cooperative education in the impoverished South. Lacking equipment and instructors for in-school vocational education, southern educators made a virtue of necessity and placed high school students in local businesses and factories. There they learned an occupation under the guidance of their neighbors and received high school credit for this learning. Vocational and general educators in other parts of the country saw this as a major undermining of standards and unsuccessfully fought its gradual spread across the country.

1940-1963:

War Production and Cold War

World War II and the ensuing hot and cold wars changed vocational education markedly. Well before our entry into actual conflict, it became clear that much of our industrial machinery was obsolete and that the industrial labor force had deteriorated markedly during a decade of depression. Therefore, if we were to supply our allies with arms, retraining of workers would have to take place on an unprecedented scale. Two methods were employed in this retraining. Training within Industry (TWI) emphasized the development of first-line industrial supervisors who were seen primarily as trainers of workers. Vocational educators were active in developing Job Instructor Training (JIT), using the same methods that Allen had developed in 1917 for use in World War I and had implemented in the intervening two decades in vocational schools. The second method was to operate vocational schools and vocational departments in comprehensive high schools for two or more shifts each day.

Vocational schools were even more obsolete than industry. Scarce equipment was diverted to these schools, and vocational educators retrained several million workers for war production--1.5 million during the first year alone, according to Barlow (1967). Vocational shops produced essential equipment. High school students were given preinduction training that was designed to be used in any military job. Training films were produced for occupations in which there were severe skill shortages. After we entered the war, vocational educators formed the backbone of military training schools and served as supervisors and teacher trainers throughout the armed services.

After the end of the war, even more equipment was given to the schools, and many vocational machine shops today owe the majority of their major tools to World War II surplus. Barlow (1967) is one of the few historians who has written about this period, and much remains to be learned from it. Indeed, most historians neglect even the effects of World War I on the establishment of vocational education. Because of the national emergency, it was critical that the persons trained for war work enter the occupation for which they had been trained. Prior to this time, it was assumed that this had happened, but no one really tested the assumption. It also became clear during war production training that some people were much better suited to training than others. These bits of knowledge led to the inclusion of vocational guidance as a reimbursable vocational activity in 1946, to the requirement of vocational counseling for anyone who desired to change a course of study under the GI Bill of Rights, and to the collection of data on the percentage of graduates placed in the occupation for which they had received vocational training.

But in most essential respects, vocational education during the decade after 1945 was remarkably similar to that before World War II. Although area vocational schools were authorized in 1946, most states were slow to establish them. These schools were designed to serve a geographic area, rather than a particular school district, so that more specialized courses could be offered to serve the larger population base.

The 1940s did produce an abortive attempt to change the school curriculum. Prosser, who is reviled by some historians for his role in shaping vocational education, proposed what came to be known as the Prosser Resolution, which was adopted by the American Society for Curriculum Development. It pointed out that 20 percent of secondary school students were served by the college preparatory curriculum and another 20 percent were served by vocational education, but that 60 percent were essentially untouched by the high school. Most of them dropped out of school.

To solve this problem, he and an influential group of educators proposed that the schools redesign the curriculum so that "the 60 percent" could be aided in their adjustment to life. "Life Adjustment Education" was immediately attacked by university scholars as an attempt to water down the curriculum and to produce an "educational wasteland." Vocational educators generally sat on the sidelines during the debate because they saw Prosser's efforts as sabotaging their sources of support. The histories written of vocational education conveniently overlook this movement, which died before it had any substantial effect.

The Russian Sputnik led to the National Defense Education Act (NDEA) of 1958 and to the expansion of vocational education into postsecondary education. Until this time, federal law had ruled out vocational education "of collegiate grade." In practice, this excluded education of any type which was offered by post- secondary institutions, except for the training of vocational teachers. The pioneering data collection scheme for vocational education in the New England states collected data on placements of trade and industrial education graduates in occupations for which they had been trained. Until approximately 1958, a person who continued into higher education or who dropped out of the labor force or was at work in an unrelated occupation was counted as a negative placement, along with those who were unemployed. Clearly, attendance in higher education was not a desired outcome of vocational education.

Before 1958 vocational education also excluded education for occupations at a level higher than skilled worker or first-line supervisor. Technicians were being used more and more widely throughout business and industry to assist professionals. The NDEA allowed an expansion of the definition of vocational education to include all nonprofessional occupations; even

licensed practical nurses, who were legally defined as professionals in almost all states, could be trained using vocational education funds under a special act of 1956.

Throughout the 1917-1963 period, federal influence was very strong. Federal officials could and did persuade states to specify the qualifications of teachers, administrators and college teacher trainers to meet federal standards. The latest edition of Vocational Education Bulletin #1 was published in 1958 and reprinted in 1962. Its first edition was published in 1917, and it went through four revisions (in 1922, 1926, 1937, and 1948). Each of the last three revisions was occasioned by changes in the federal law and publication of subsequent regulations in the Federal Register. From 1917 to 1963 it was the "Bible" for vocational education programs that received federal funds. It contains absolutely no reference to outcomes other than the expenditure of funds for purposes allowed by federal law. All of the other provisions refer to processes to be followed.

From this document it is possible in a few cases to infer outcomes that are not desired: for example, in trade and industrial education, "Evening classes may enroll only workers . . . who are employed in a trade and industrial occupation . . . . [T]he instruction must be such as to increase the skill or knowledge of the worker in the trade or industrial occupation in which the person is employed" (p. 18). Clearly it was not considered desirable for vocational education to assist employed persons to shift from one occupation to another.

Cuban (1982) has the best summary of federal vocational legislation. He credits Venn (1964) with first pointing out the rigidities of vocational education under the Smith-Hughes Act and the marked changes introduced by the 1963 act.

In 1918 the Federal Board determined that Smith-Hughes funds set aside for teacher training could be used to pay the salaries of state vocational education supervisors (Cuban 1982). The justification for this was that the supervisors could note the need for and provide teacher training during their annual or semiannual visits to each vocational teacher. New teachers and those teachers having difficulties were visited more frequently. Even today, some states station their supervisors at teacher training institutions so that they can provide college credit for the inservice training that they feel is needed. If the vocational teacher does not see the need, his or her teaching license may not be renewed.

This evaluation of vocational teaching by state-employed supervisors has been conducted somewhat unevenly. But if it is based on direct observation, is unannounced, and involves a comparison by a specialist of what is happening locally and what is happening in similar vocational classes in many different

schools, it can be very effective. The school principal, who is usually seen as the most efficient supervisor, is not a specialist and rarely has the opportunity to make cross-district comparisons with other specialized programs. The elimination of earmarked funds for teacher training in 1963 marked the death knell for adequate state supervision.

1963-1976:

The War on Poverty

In 1962 the Manpower Development and Training Act was passed. Although it was developed originally as a means of supporting the retraining of workers displaced by computers and other technological developments, by 1963 it had become a principal arm of the federal government's war on poverty, race, and disadvantage. In spite of the word "training" in its title, it became a means more for income transfer than for instruction. It was administered by the Labor Department, in part because vocational education was seen as an in-school program that did not address the problems of those out of school. Another major problem was that the federal vocational education legislation was seen as being static, with funds earmarked for various occupational categories which had been established through political means rather than adjusted periodically in accordance with labor market needs.

A Panel of Consultants was appointed in 1961 by President Kennedy and chaired by the superintendent of schools in Chicago, Dr. Benjamin Willis. The recommendations of the Willis Panel were incorporated almost verbatim into the 1963 Vocational Education Act. Earmarked funds for occupational groups were virtually eliminated; the emphasis on technical and postsecondary vocational education was strengthened; funds were authorized for buildings and equipment. Attempts were made to eliminate funding for agricultural education and to require that half of the funds for home economics be spent on job-oriented training. Amendments to effect this were narrowly defeated (Barlow 1967), but administrators received the message, and increasingly related programs in these fields to opportunities in the labor market. The major change, however, was the new emphasis on people to be served, rather than on the subject matter to be taught, and a call for vocational education to help to reduce hard-core unemployment. This was quite different from earlier versions of vocational education legislation, which specified that its students should be drawn from those who can "profit" from its instruction. This was shorthand for restricting enrollment to those who were most qualified, rather than those who had the greatest need.

In spite of the 1963 act, vocational education changed very little, except for further expansion of postsecondary and cooperative education. In 1967, a new national commission was formed, the Advisory Council on Vocational Education. It was chaired by the chief state school officer of Ohio, Martin Essex. As did the Willis Panel, this new group set out to examine vocational education and to recommend changes in legislation and administration. It issued two reports, a General Report (Essex et al. 1968), which was widely circulated, and a special report, which was not. A description of the deliberations leading up to these two reports was published by three members of the Panel (Evans, Mangum and Pragan 1969).

The principal changes were the recommendations that programs be established to serve handicapped and disadvantaged persons, that work-study programs be encouraged, and that funding be based on enrollment and program performance. As with the Willis Panel, almost all of its recommendations were incorporated into legislation--the 1968 Vocational Education Amendments.

One of the curious anomalies of vocational education is that although it has sought continually to "cream" its applicants, it has regularly enrolled a population that is low in verbal ability and in socioeconomic status. It has, however, managed to reject the lowest 5 percent of secondary school juniors and seniors measured in terms of school achievement. And although it has reached many potential school dropouts, a quarter of the school population drops out before any significant amount of vocational education is available to them. These dropouts and rejects have significant labor market problems and become prime candidates for Labor Department programs of employment and training.

The stress on training-related employment as a criterion of success in vocational education encourages creaming, not only in terms of school achievement, but also in terms of physical ability. The physically handicapped are often seen by vocational educators as being hard to place and hence detrimental to the evaluations based on placement rates. More subtly, there is fear that emphasis on service to the disadvantaged and the handicapped would damage the public image of vocational education. The 1968 act tried to change this behavior by specifying that 25 percent of vocational funds should be spent on the handicapped and disadvantaged.

The Essex Panel called for much more emphasis on cooperative education. This method of instruction involves cooperation of schools and employers. It began during the 1930s in the South, partly as a way of cutting school expenses. It was patterned after the cooperative education programs in engineering education that began about the same time as federally supported vocational

education. It was fought bitterly by federal supervisors of vocational education until the 1950s, but it expanded slowly nevertheless. The 1968 act gave it respectability.

Perhaps the greatest changes to date began in 1968 with what seemed to be a minor decision: to permit the spending of federal funds for those industrial arts programs that were deemed by each state to contribute to vocational objectives. Industrial arts, which also grew out of that precursor of vocational education, manual training, has always emphasized general education objectives. One of these objectives has been to provide vocational skills and knowledge. For the past three decades, the tendency has been to make vocational education programs in the secondary school more and more general, so the funding of industrial arts fits this trend. (It has always been anomalous that education for homemaking, which is a part of general education, has used vocational education funds, while industrial arts could not. General business education still cannot).

During the early 1970s, many vocational educators feared that all of their funds would soon be used for general education purposes. United States Commissioner of Education Sidney Marland promoted the concept of careeer education, which went well beyond vocational education in seeking to develop career awareness, exploration, and skill development for all students and all occupations at all levels of education. Eventually career education received token funds of its own, but in the early days it was financed by federal vocational education appropriations. Many of its concepts were drawn from Prosser's Life Adjustment Education of the 1940s, but it had a more felicitous name and a better research base in vocational guidance than had the earlier movement. Indeed the only significant attacks on career education have come from the neo-Marxists who fear that it might delay the overhaul of the economic system that they feel is necessary. The general educators who buried Life Adjustment Education have not commented.

It is fashionable these days to say that career education is dead. It would appear, however, that it is prospering under a variety of names, and that it has been incorporated into virtually every school subject from nursery school through graduate school. Certainly it has affected vocational education by broadening its goals and by permitting access to students who desire a single course without the earlier insistence that they commit themselves to pursue a full vocational program.

Although Cuban (1982) says that for the six decades before 1975 the primary evidence of impact of vocational education has been that "old standby, increased enrollment," this statement

applies only to pleas that vocational educators have made to Congress, asking for more funds on the basis of increased enrollment. However, before 1968 allocations of funds by states to local education agencies had been made almost universally on the basis of the number of approved vocational teachers, not on the basis of enrollment. This had the effect of continuing low-priority programs, because low enrollments tend to result from decisions by students and their parents about the low relative personal value of those programs. The 1963 Act required that enrollment be a factor in allocations to local schools. Perhaps this one change did more than any other to ensure that market forces would shape vocational education in the future.

What now seems to have been the final gasp of the war on poverty and discrimination came with the 1976 amendments. This legislation was engineered by Congress without the aid of a national panel. The principal change was a marked stress on the reduction of sex bias in vocational education. Although enrollments in vocational education showed less sex bias than the world of work, women have been concentrated in business, home economics, and health occupations, while agricultural and trade and industrial education have been largely male preserves. Congress demanded that this be changed.

Evaluation of Outcomes

Virtually every conceivable outcome of vocational education can be achieved either by providing high-quality vocational programs or by carefully selecting the trainees. If outcome measures do not take into account the gains in performance which accompany training, the natural result is to encourage creaming. This descriptive word, encountered frequently in conversations among CETA workers, describes a deliberate process of selecting the most qualified trainees and rejecting those who most need help. It is a pejorative word, especially among program evaluators, but program operators tend to substitute "selection of those most likely to profit from the program" or some similar phrase that indicates that it is not bad to reject those who are primarily interested in the stipends which accompany training, rather than in learning.

Consequently, it has become very common in evaluations of employment and training programs to compare the earnings of participants prior to and subsequent to training. Those types of training that produce large gains in earnings are considered to be effective, while those that produce small or no gains are judged to be ineffective. Evaluators--principally labor economists--who have had experience in studying employment and training programs tend to use this same criterion in evaluating vocational education.

It is usually much easier to increase earnings from zero than from some higher value. Consequently, youth and housewives (or househusbands) with no paid work experience may be preferred trainees if trainers know that their work will be judged by increases in earnings.

Conversely, adults who have chosen, because of poor working conditions, or have been forced, by plant closings or retirement, to leave a highly paid job would not be desirable trainees if evaluation of training is based on increases in earnings. Their wages after training might well be lower than before training, even if the training were highly satisfactory to them and to their subsequent employers. In such cases, it would seem to be useful to evaluate the value added by training in terms other than added wages (Evans 1981).

Proportion of Population Enrolled

If a vocational education program enrolls no women or minorities or handicapped or disadvantaged persons, it is clear that this is an undesirable outcome. The natural assumption is that there is discrimination against all persons from these groups. A similar assumption is made if the proportion of people from any of these groups differs markedly from their proportion in the population from which the trainees are drawn.

Conclusions

One clear fact emerges from our study of the history of vocational education. In the early days, many people stated outcomes that they expected of vocational education, but few attempted to assess actual outcomes. Now, there is much more attention to actual outcomes, but the tendency is to try to assess outcomes of "average" or "typical" programs and to generalize from these results to determine what can be expected of vocational education as a whole. In contrast, the few studies of actual outcomes in the early days of vocational education looked at the outcomes of individual programs in order to decide how to improve those programs or to decide whether they should be expanded or terminated. It is our view that the assessment of outcomes in order to improve individual program decisions is much more desirable and feasible than assessment of a group of disparate programs serving disparate communities and disparate groups of individuals under disparate economic conditions.

Less clear, but perhaps more important, is the suggestion that instead of looking directly at expected outcomes of vocational education, it might be well to look at its goals or purposes and then to move to the outcomes that flow from these

goals. Evans and Herr (1978, p. 4) identify three goals: meeting society's needs for workers, increasing the options available to each student, and serving as a motivating force to enhance all types of learning. Later, Evans (1981) suggested a fourth goal, to increase the ability of workers to improve the quality of work and of the work place. The National Association of State Directors of Vocational Education (1980) specifies two purposes: provide individuals with the skills they need to attain economic freedom and enhance the productivity of local, state and national economies.

Instead of the traditional "maintain, extend and improve" purposes, the Vocational Education Amendments of 1976 list a more ambitious set of purposes: "to assist the States: to extend, improve, and, where necessary, maintain existing programs, develop new programs of vocational education to overcome sex discrimination and sex stereotyping in vocational education programs so that persons of all ages in all communities will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training."

Almost all of the outcomes to which we have been asked to react appear to be desirable, but many of them do not appear to flow directly from any of the above sets of goals or purposes. For example, "satisfactoriness to employers," "placement in a job related to training," "positive attitude toward work," "increased earnings," and "enhanced leadership capabilities" are difficult to relate to the goals stated above. There are, of course, unintended as well as intended outcomes of programs, but none of the outcomes we have been given appear to be unintended.

The statements of goals for vocational education listed here are by no means all-inclusive. Obviously, other goal statements should be examined as well to see what outcomes should be added. But for some reason the statements of goals for vocational education, particularly goals which have been accepted by key groups, are few and far between. This is one reason why revisionist historians have had to infer goals, including goals that few vocational educators, past or present, are willing to accept. Perhaps we should pay more attention to the development of goal statements in order to have better statements of outcomes.

Much is said about cultural lag in education and in other social programs. It should be noted that there is also cultural lag in evaluation of outcomes. The evaluation of vocational education during the 1963-1976 period concentrated on the extent to which persons were placed in the occupation for which they were trained, though the emphasis in the legislation was on

increasing equity in training and employment. It is well known that an emphasis on training-related employment leads to creaming rather than to the enrollment of those who most need training.

A further indication of this lag is that current evaluations emphasize such outcomes as the proportion of minorities and women enrolled in vocational education, while neglecting the fact that the high school dropout rate has remained static for more than a decade. Similarly, the earnings of vocational graduates have received increasing attention while there has been a general neglect of the economic fact that, as enrollments have continued to climb, the earnings advantage from vocational education is almost certain to have leveled off. The fact that vocational education has responded to the mandate to increase the enrollment of those who are more difficult to educate and to place in high paying jobs is another factor that almost certainly affects average labor market outcomes. Finally, there is a severe lag shown in concentration on evaluation of secondary school programs and neglect of the outcomes of postsecondary vocational education.

Time will tell whether the reauthorization of vocational education that is scheduled for 1984 or earlier will show similar lags. The probability is that Congress will continue to be more foresighted than vocational administrators or evaluators in stating goals and purposes. Nevertheless, we should be wary of encouraging them to go further than they have in stating proposed outcomes. They have shown that they are more interested in fostering outcomes that are related to the current state of the labor market than in more important outcomes that are related to improving educational systems or to encouraging individual geographic or social mobility or even to enhancing lifetime earnings.

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QUESTIONS AND ANSWERS ON
HISTORY OF CHANGES IN OUTCOMES EXPECTED OF VOCATIONAL EDUCATION

Question: The discussion in our buzz group focused more on institutions than on individuals. In view of this focus is increased enrollment a legitimate outcome? Will you provide us with additional rationale concerning the appropriateness of increased enrollment as an outcome for vocational education?

Evans: If one's view of the institution is that it channels people and programs, then increasing enrollment becomes the institutional goal. Of course, it is the charge of most neo-Marxists that what vocational education and the schools as a whole do to people is to channel them into particular school activities. In this instance then, increased enrollment is an outcome desired by the school, as an institution, and by capitalists, who are seen by the neo-Marxists as controlling the school. On the other hand, one can view enrollments in vocational education as a test of perceived quality of the program, as a test of perceived congruence between school offerings and individual needs. This is most clearly evident in our adult programs, where essentially people beat on the door and say, "I want to enroll." In that case, enrollments are not an institutional outcome at all. It is their way of saying to the institution, "You're doing something good. Do some more of it."

The obverse of enrollment, nonenrollment, is really the test, the outcome, which has reshaped vocational education more than everything else that has been done. If you offer a program and nobody signs up, then you stop offering the program. We have examples of nonenrollment as an outcome all through our history. Somebody comes to the school, perhaps an advisory committee, and says, "This is exactly what we need." The school says, "We'll offer it." Three people sign up. The program dies. If you get a program that starts off with forty enrollments, then has thirty enrollments, twenty enrollments, ten enrollments, it will be eliminated. This is what I mean by enrollment as an outcome.

You ought to recognize that historically it was not the goal of vocational education to increase enrollments substantially, up until about 1960. In some states there is still not an attempt

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NOTE: The questions were generated by buzz groups at the Working Conference. Dr. Evans' responses to the questions were transcribed and edited.

to increase enrollments. Byrl Shoemaker, former state director of vocational education in Ohio, said we're not going to expand the number of vocational education programs in Ohio until the ones that we have are funded adequately. Now that's a different approach than in Illinois, where they said that by paying a dollar a head to provide every elementary school student in the state a little bit of career information, we can increase our enrollments enormously. These are very different approaches to goals and outcomes.

Question: You have indicated that vocational educators have emphasized processes rather than outcomes. Can you provide us an explanation as to why that was the case?

Evans: The primary reason is that it is a lot easier to specify processes than it is to specify outcomes. This emphasis is not solely in vocational education; it is pervasive in education as a whole. In the North Central Accreditation process, in both secondary and postsecondary schools, the emphasis has been almost entirely on process.

Look at the specifications for vocational education programs. Until the late 1950s the federal government specified very completely what would be done in vocational education. Many states added more specification. Vocational agriculture departments have been closed because they had a twelve foot outside door instead of a fourteen foot outside door. The entire city of Chicago received no vocational education reimbursement for home economics for many years because they said it was impractical for them to meet the state specification that they make home visits to every home, of every student, every year. That was a process specification. Because they couldn't meet it, they didn't get a penny of state or federal money. It's easier to inspect compliance with process specifications and this has been the way we have tended to evaluate all of education.

Question: Have the clients of vocational education ever been polled concerning their evaluation of vocational education? Has vocational education attempted to meet the needs of clients?

Evans: Not that I know of, unless you accept enrollment as a measure of whether you're meeting the needs of the clients. Remember that until roughly 1965, it was customary for states to distribute money to local education agencies based on the number of certified vocational teachers they had. More recently, under the prodding of Congress, most states distribute money based mainly on the number of students they have. There is a big difference between these two methods of reimbursement. If what

you're trying to do is to support a teacher in the style to which he or she has become accustomed, then you reimburse on the number of teachers. But if you are trying to increase enrollments you reimburse on the number of enrollments. State aid for general education has been tied to student enrollment and attendance for a long time. Vocational education was completely out of step with that until it began to emphasize enrollments during the 1960s. That period of time was when vocational education enrollments began to increase rapidly.

Question: Have the clients of vocational education really been approached concerning what they want from vocational education?

Evans: Yes, there have been some studies of what people say they want from vocational education and studies asking if they got what they wanted.

Question: You have indicated in the presentation that all of these outcomes have been supported by someone in the past at some point in time. Could you put any judgment on how effective we've been with any one of the outcomes?

Evans: We were very effective in helping to prevent high school dropouts up until 1970. A major goal of vocational education, and of public education as a whole, was to decrease the proportion of elementary and secondary school dropouts. The proportion of dropouts decreased dramatically until 1970. Then it leveled off. The enrollment in vocational education has continued to go up, in spite of the leveling off of dropouts.

Audience Comment: There was a marvelous little book published in 1978, by Thomas Green, titled Predicting the Educational System. Green does a macrolevel analysis of what was happening with reference to dropout rates. He looked at the utility of a high school education in relationship to the varying proportions of individuals who completed high school. Green recommends that instead of trying to reduce the dropout rate, we should resume a 50-65 percent rate of high school completion. Green contends that the more people you have completing high school, the lower the return there is for a high school diploma, and that it tends to impact very negatively on those groups who have been the latest to be among the high school completers, such as blacks and disadvantaged populations. According to Green, there is a point at which there is a diminishing return on the investment in education to complete high school, both for the individual and for the society at large.

Evans: Sar Levitan reaches the same conclusions but for somewhat different reasons. Sar charges that the high school is not the most efficient way to provide an education for some people, and that other training institutions should be involved in it rather than try to send everybody through high school. I like Sar's reasons a lot better than I like Tom Green's. Tom, it seems to me, is in a box because he does not have a good answer to the question of who are the ones not allowed to complete high school.

Audience Comment: I think he would say that if you had 60-65 percent completing high school and if the societal press was not to complete high school, employers would no longer use a high school diploma as a screening device.

Evans: Tom is basically an elitist, and he is very wrong if he thinks employers are going to stop using education as a screening device.

Question: In view of the many relevant groups supporting vocational education and the different perspectives they have, should there be one set of expected outcomes for vocational education?

Evans: One should not expect there to be one set of outcomes for vocational education. Vocational education is an assemblage of programs with different goals. Therefore, one should expect different outcomes from different programs. Different groups in society are going to expect different things from vocational education. These groups are going to expect vocational education to provide those things that they think are good for them. So self-interest determines generally what they want from vocational education. If we tried to respond to serving the self-interest of each of these groups, with the same set of programs, we couldn't achieve it. One way to respond is to come up with a vocational education program that serves the unions, one that serves the employers, and so forth. This presents a problem because you are also trying to serve such a wide range of age groups.

I do not like the way that we have dealt with this in the past. If you look at history, the way we've coped with this is to blur the definition of vocational education and its goals. We have said vocational education is many programs, but we do not specify its goals. Then we say, "Look, here is a desirable outcome of this part of this big pot. This program has helped certain people in certain ways." If you blur the definition, then in testimony before Congress you come in with a very bright FFA member, and say to the Congressman, "This is the result of vocational education." So Congress votes money for all of vocational education based on the performance of this small group of FFA

leaders. That's fine if you want to get money, and it's been very effective, but we've done it by blurring the definition of what it is we are talking about when we say vocational education. Vocational education has received money for the whole pot by displaying some outcomes of a part of that pot.

Question: Do we need a set of outcomes for vocational education, and if we do, what would be a model to formulate them? Should we start with goals, constituent groups, and/or provider groups? Should the outcomes be derived from the goals?

Evans: I think that would be highly desirable to start with goals. Let's first look at the needs of each constituent group, and see which of these needs seems to be in accord with the goal of some part of vocational education. Then let's build programs that have goals that meet those needs, and then look at the outcomes which emerge logically from the goals. I'm willing to even short circuit that a little bit and suggest that we find out what the goals are, say, of homemaking education, and determine what are the outcomes that we can expect as a result of those goals. What are the goals of postsecondary technical education, and then what outcomes can you expect of those? This would be better than trying to say these are the outcomes of all of vocational education, which is what I think we've been trying to say, somewhat unsuccessfully.

Question: Can you give us an example of some place where there has been a successful adventure in goal setting as it relates to programs such as vocational education?

Evans: Yes, the Oklahoma Technical Institute has a specific set of goals, the idea has not been to serve everybody, there's a definite population that's being served, a definite set of clients for whom the program is designed. I'd argue that South Carolina and several other states which have modeled their economic development programs after South Carolina have been enormously successful in specifying specific goals for certain types of institutions and achieving those goals. In none of those cases has there been an attempt to do everything for everybody with one set of programs. But if you try to specify goals publicly for all of vocational education, you may run into difficulty, because some people won't like some of your goals. Perhaps this is another reason why we have blurred our definitions of vocational education. Surprisingly, though, the state directors of vocational education were able to agree on two goals for all of vocational education.

Question: Do you think that the example in CETA legislation of making explicit expectations for programs is one that we should emulate in vocational education?

Evans: I would like to have specific goals for specific programs. I would not like to see us have specific goals and outcomes that bind all vocational education programs. CETA has had a little problem with public perception of its worth. I'd like to see somebody look at how Bob Taggart almost single-handedly reversed the universal perception of the Job Corps, which is a part of CETA. Job Corps had an image of being extremely costly, very wasteful--now it's perceived as the model employment training program. Now how did that perception get reversed? It would be a fascinating case study. It could be illuminating for a variety of different types of institutional programs.

The primary difference between CETA and vocational education legislation has been in the specification of the population that must be served. This was very specific for CETA, and not for vocational education. Beyond the legislation, the federal supervision of CETA has been even more specific than its supervision of vocational education from 1917 to the mid-1950s. One could expect, I suppose, that it is easier for Congress to state specific expectations for the costs of programs when it pays the entire program costs. I hope it never pays all of the costs of vocational education, though I'd be happy with an increase above the current level.

SELECTED VOCATIONAL EDUCATION OUTCOMES: A PHILOSOPHICAL PERSPECTIVE

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Introduction

This paper is about philosophy and vocational education. The writer was asked to examine philosophy for ideas and ideals that support or reject the appropriateness of each of eighteen outcomes to vocational education that were developed by another group and another process.

We live in a world of conflicting cultures and ideologies, in which various and conflicting claims are made about what is true and what is false. Further, we live in a society that is called pluralistic on the grounds that it has managed with some degree of success to have incorporated within its social fabric a plurality of world views and belief systems that it seeks to harmonize by consensus and not by force. In addition, proponents of each idealogy and belief system thrust to the fore central and crucial ideas that reflect their world views and their notions of what is true and what is false.

The same is true for vocational education. It, too, is pluralistic. The term pluralism is used in contrast to monism. There is no one philosophy of vocational education. There is no one perspective of vocational education. There is no one belief system of vocational education. As vocational education or, I should say, as the philosophical foundations of our present day vocational education was verbalized at the turn of the century, it was perhaps easier to say that vocational education was monolithic. Prosser was able in 1917 to formulate his theorum of vocational education. These were accepted without significant dispute by vocational educators and were the guiding force beyond the philosophy of education and schooling that took place within vocational education. Clearly, in 1982 we have several competing belief systems in vocational education. There is one belief system that guides a great deal of the federal legislation, that impacts vocational education directly, but there are other belief systems that guide the process of inquiry within vocational education. In addition, there are conflicting theories of schooling that guide the selection of curricular outcomes, teaching strategies, and disciplinary practices within vocational education. Is there anything that is called "truth" that can transcend the particular arguments between the various ideologies, cultures, and interest groups?

As we search for a rationale for looking at philosophy, we are reminded that individual groups have always endeavored to

orient themselves to the world of their experience: what meaning they find in events, what values they aspire to, what standards guide their choices in all they do. Philosophy makes individuals think about the basic foundations of their outlook, their knowledge, and their beliefs. It makes individuals inquire into reasons for what they accept and do, to the importance of their ideas and ideals, in the hope that their final convictions, whether they remain the same or whether they change as a result of this examination, will at least be rationally held ones.

This is the historical function of philosophy: to integrate in its quest for truth the findings of knowledge from whatever quarter and in it's quest for a way of life that value that gives life meaning. In this sense, philosophy explores all pertinent knowledge in the spirit of free inquiry, with the end view of establishing a way of life agreeable to reason and logical human excellence. It is not bound by restricted property rights in conventional subject matters, nor is it the private preserve of professional philosophers.

These points were made so eloquently and so clearly by Montgomery (1952) in an article titled, "John Dewey and the Egg-in-the-Bottle." This was the first of seven articles written by Ray Montogomery at the time of Dewey's death to help clarify Dewey's philosophy, and are recommended by this writer to any reader who wants to understand the essence of Dewey's philosophy. Montgomery wrote:

> In everyday conversation, we speak of philosophy without giving it any aura of untouchability. "That s my philosophy," a man will say after expressing an opinion. In a way, that is what philosophy meant to John Dewey. Philosophy is a pattern of behavior which accepts consciously. On the other side, we can say that 'America has a philosophy.' But surely no one would argue that today the United States, as a whole, has a consciously accepted pattern of behavior. Yet a society needs such an articulated, carefully and consciously patterned way of behaving. It needs such a pattern to give value and structure to the daily activities of its members. Philosophy gives meaning to life because it expresses consciously the relationships between man and man between men and things which make life what it is. Philosophy permits each of us to see himself in a satisfying role within an understood context of people and events. Without such a view, we act aimlessly and accidentally, we make constant errors, and we find that nothing we do is satisfying. (p. 95)

In this sense, the various purposes of educational philosophy may be classified into four different groups. These are philosophy as inspirational, philosophy as analytical, philosophy

as prescriptive, and philosophy as investigative. In philosophy as inspirational, we ask it to display a model, an ideal that each of us will try to attain. In philosophy as analytical, we ask it to look at meanings, validity, and efficacy. In philosophy as prescriptive, we ask it to prescribe particular ends and means that should be achieved; and finally in philosophy as investigative, we ask it to evaluate, to justify, to offer commentaries on particular practices.

The task in this chapter is to be investigative. That is, we will take each of the eighteen outcomes as given ends, we will look for evaluations, for justifications; and we will offer some commentaries on the various practices. That will be the primary focus of this chapter. As we take that focus, we are aware that some of the other characteristics of philosophy will be served.

Three problems will be paramount as we go through this particular task, and one is a definitional problem. Vocational education does not experience a strong unified agreement as to the meaning of various terms. Hermeneutics is the study of the methodology and principles of interpretation. Vocational education is not very hermeneutical, that is, we have not studied our methodologies and principles of interpretation to clarify meanings, thus, from time to time, it will be necessary to define the specific way terms are being used so that possible misinterpretations will be kept to a minimum.

The second problem concerns a difference between a philosophy of education and a theory of schooling. I think it is important that we keep in mind that these are two different concepts. And it will be helpful if we keep them separate. In the introductory part of this chapter, it was noted that educational philosophy makes its investigation concerning itself with the nature of persons to be educated, the determination of objectives, and, to some extent, the means to use to achieve these objectives. Perhaps the best distinction between the notion of philosophy and the notion of schooling is made by Power (1982). He wrote:

> Where educational philosophy plays down method to inflate the importance of goals and curricula, to deal with questions of why and what to teach, a theory of schooling concentrates its attention on method, on the actual practices of teaching and learning. (p. 157)

There is a great deal of what we do in vocational education that deals with schooling, that is with the actual practices of teaching and learning. So much of schooling does not find its way back to philosophy. It finds its way back to psychology, and the justification for its inclusion in a particular program or curriculum is a psychological justification, not a philosophical one.

The third problem concerns what constitutes a philosophical issue or problem. Thompson (1973) has pointed out that:

> All behavior rests on certain assumptions. If one's assumptions are sound, the resulting behavior will be profitable, but if behavior is based on wrong assumptions frustration results. Although assumptions cannot be "proved" in a scientific sense, they need to undergo their own kind of special examination or test. (p. 89)

These tests include such things as reliability, validity, and consistency. Venable (1967) has listed several reasons why our beliefs do not always determine behavior as they should. Among these are (1) a safety in numbers: putting into practice only those things that others have been known to do; (2) emotional satisfaction; and (3) what works (pp. 10-11). Vocational educators are particularly prone to these three conditions. One reason for this may be a lack of direct contact with philosophy.

It is at this point that the philosopher can come to our aid. One way in which we may view the role or task of philosophers, is that they aid us in examinations of our assumptions. Each of us, while continually testing beliefs and concepts in light of logic and of their consequences, is engaged in the study of philosophy. The study of philosophy is not like the study of any other subject, one cannot study about philosophy in the same way that one studies other subjects, such as history or economics. But the study of philosophy requires the individual to adopt new ways of thinking. It requires individuals to engage actively in the examinations of their own assumptions.

Any complete theory of vocational education would most likely be a set of reasons for beliefs about goals, policies, organization, curriculum, and perhaps teaching and learning methods of a program designed to produce or enhance occupational competence. These beliefs would range from specific course outcomes to hypotheses about the role of work and the social order, and the role of work in the life of individuals. Such a set of beliefs and their justifications could indeed be called a philosophy. Where would one go for support for the beliefs in the philosophy of vocational education? One would obviously go to the standard branches of philosophy, epistemology, ethics, metaphysics, esthetics, as they are applied to education. If the belief put forward is some other kind of statement, where would one go for support? One would be likely to find evidence for support from empirical data and generalizations. There is no point in raising philosophical issues if the point can be settled by facts or empirical theories about the facts.

For example, one of the outcomes identified for vocational education in this report is "increased earnings." The belief being expressed is that participation in vocational education

positively affects the wage or salary of workers. That is not a philosophical outcome. One need not and cannot go to philosophy to find an answer to it. One simply needs to turn to empirical data. To find justification for this outcome one would simply need to look at the various studies that been done to see if those who have had vocational education do indeed earn more money than those who have not. So some of the outcomes that were identified by the project staff are not outcomes that can be examined philosophically unless one pushes them further than the simple statement of the outcome or its explanation. One would need to go beyond the stated outcome or to recast the outcome in normative terms.

A Philosophical Framework

When examining education with the tools of philosophy, several philosophical frameworks are available. These include idealism, realism, existentialism, experimentalism, and neo-thomism. These positions differ as to how the various components of education are viewed. A summary of such differences in terms of purposes, curriculum, and method is displayed in figures 1 and 2 for four such philosophical frameworks. The author believes it is important to use one philosophical framework as the outcomes of vocational education are analyzed. The framework chosen is experimentalism.

Rationale

Henry Commager (1950) in his book, The American Mind, in which he describes how it is that Americans have come to believe in and think about things the way we do, had this to say:

> The American's attitude toward culture was at once suspicious and indulgent. Where it interfered with more important activities, he distrusted it; where it was the recreation of his leisure hours or of his women folk, he tolerated it. For the most part, he required that culture serve some useful purpose. He wanted poetry that he could recite, music that he could sing, paintings that told a story. Stephen Foster was his most beloved composer, and Currier and Ives his favorite artists. Art was something that had happened in the past, and when he could afford it he bought the paintings of artists long dead, listened to lectures on French cathedrals, and built museums to look like mausoleums. Education was his religion, and to it he paid the tribute both of his money and his affection; yet, as he expected his religion to be practical and pay dividends, he expected education to prepare for life--by which he meant, increasingly, jobs and professions. His attitude toward higher education was something of a paradox. Nowhere

FIGURE 1

OVERVIEW OF FOUR PHILOSOPHIES

	Idealism	Realism	Pragmatism	Existentialism
Ontology:	mind and form	things, objects, matter	human experience	existing
Epistomology:	the idea	ideas as they correspond with observable facts	consequences of an idea when acted on	existential choice
Axiology:	reflection and imitation of the ideal mind and idea	nature and natural law	the public taste	personal rather than public norm

FIGURE 2

EDUCATIONAL OVERVIEW OF FOUR PHILOSOPHIES

	Idealism	Realism	Existentialism	Pragmatism
Purpose:	formation of character, development of talent	life adjustment and social responsibility	experience with all forms of life	provide experience for meeting novelties in personal and social life
Curriculum:	symbols and ideas; liberal education for development of abilities	all useful knowledge of the physical world	liberal education as a foundation for freedom; personal choice	social experiences; interests and needs of students; always emerging
Method:	dialectical, absolving ieas	mastering facts and information; direct and incarious experiences; logical and psychological	no preference, but it must lead to happiness and good character	problem solving; scientific method; activity; learn by doing

> else in the western world did colleges multiply and flourish as in America, yet not until Elliot reformed Harvard and Gilman built the Johns Hopkins did he have a real university. No people were more avid of college degrees, yet nowhere else were intellectuals held in such contempt or relegated to so inferior a position; and in America alone the professor--invariably long haired and absentminded--was an object of humor.(p. 10)
>
> He undertook the most gigantic educational program in history, but it was the universal opinion that American education was eclectic rather than thorough. (p. 19)
>
> More fully than any other philosopher of modern times, Dewey put philosophy to the service of society. More, he formed a whole network of alliances--with science, with politics, with education, with aesthetics, all directed toward advancing the happiness of mankind. His quarrel with the transcendentalists was not merely that their system of truth was absolute, but that it encouraged atomistic individualism; his quarrel with determinists not merely that they reduced the individual to insignificance, but that they did not respect experience. The ends he sought were public, not private. Truth was, to him, not merely what worked for the individual, but what worked for the group, and it was not to be achieved by cooperative action. (p. 99)

Butler (1968) has traced pragmatism back four centuries before Christ. But persons of the American character shaped it, nurtured it, systemized it. It was a meeting place for many philosophic perspectives often a reaction to some diversions of an ideology. As it was shaped and so on, it took on the character of its culture. While it is difficult to define, it does offer guidance. The experimentalism is a large tent under which it is possible to find shelter for many so-called outcomes. It is practical and social. In these attributes it parallels vocational education. Childs has identified five major reasons why experimentalism and the American culture are so interwoven: (1) the frontier experience of the American people; (2) mobility of American social life; (3) orientation of America to the future, not to the past; (4) the tendency of pioneer America to urge both ideas and human beings not primarily by their ancestry but rather by what they were able to achieve in the context of actual life affairs; and (5) the commitment of the American people to the democratic way of life Childs (1956, pp. 6-10). Because of its being diverse but having the ability to guide, being socially focused, being practical, being committed to democratic principles, experimentalism is a good framework for viewing vocational education.

The Philosophy-Overview

O'Neil, writing in 1981 about educational ideologies, said, "Pragmatism holds that an idea is 'true' if it leads to effective consequences, when applied to the solution of a real problem." Pragmatism had its birth in the American nation with John Dewey, the public person most easily identified with the position. It grows out of the emergence of science and of the scientific method. Two themes guide pragmatic thought: process and relativism.

To the experimentalists, ideas have consequences. The meaning of a proposition is in its consequences. If an idea were acted upon, the consequences of the action would define the idea. A meaningful idea is one that can be tested and can be acted upon, tried out, and practiced. It is a philosophy of action, of actors who act on the world. Its focus is on the realm of epistemology, with some axiological claims, and less concern for ontology. It is the process of humankind's interactions and the propositions derived from these interactions that is at the heart of pragmatism.

The pragmatist views the universe as matter in motion; change is continual and pervasive. Not only is reality changing, but values are also relative, to time, place, and circumstances. Since little endures, or is permanent, pragmatism implies that the curriculum should emphasize process, such as learning how to learn, and science as method. Further, teaching and learning should be active and interactive enterprises. The ends and means of education should be reciprocal and mutually reinforcing.

For a pragmatist, human beings create their world by a continuous reconstruction of experiences. The teacher, in order to encourage increased and more complex reconstructions, should extend and build upon students' experiences. Although the pragmatists emphasize process, none of these processes are to be learned as merely academic ritual or formula.

The Philosophy-A Closer Look

Experimentalism is a matter of dealing with the affairs of life in some sort of pattern or configuration. This is why it is classified as a "field theory." The field, the total pattern in question, is determinative of any particular time in the field; and each and every time within the field is likewise determinative of the field, that is, of the whole. It is a back and forth, forth and back relationship. It is rationale; it is relative. Thus, it may be said that experimentalism is a matter of taking relativity seriously. Concerning this relativistic viewpoint, Bayles (1966) noted:

> Let us take a look at this back and forth, forth and back view of the ways things and events affect one another. For example, in a class I might start with a clean blackboard and draw on it a small circle like the following: 0
>
> When I ask what it is there is some hesitation and then a tentative reply that it is a small circle. Noding assent, I place at its left a vertical line. 10. Now what is it? It's a zero, part of the number 10, meaning no ones more than 10. I place a vertical line at its right, 101, and it becomes part of a number 101, the circle still meaning 0 but meaning no tens more than 100. This line of changes can continue further if desired and can be modified by introducing a decimal point and shifting it around, consequently changing the meaning of the zero. Now I erase all but the original circle, draw a similar circle at its right, add the following lines, and it is no longer even remotely related to the number system, but is immediately seen as a rear wheel of a little boy's wagon. Erase the wagon box and the tongue and add three lines and our wagon wheel becomes a human eye. (pp. 2-3)

The variations of this theme of course are legion. But the above should be able to focus our attention on the fact that for the experimentalist, this whole and relative pattern is very, very important. The whole affects the parts and the parts in turn affect the whole in back and forth, forth and back relationships to determine things and events and the ways we envision them and have to deal with them. To the experimentalist, individuals have to deal with this pattern or configuration in a contextual way and deal with all things at all times. As we attempt to understand experimentalism in reference to educational programs, there are three areas that need clarity. These are (1) the nature of the individual, (2) the nature of truth, and (3) the nature of culture. While discussion of these three areas does not constitute a complete analysis of experimentalism, it will provide necessary essentials for the latter part of this chapter. What follows are nine assumptions about these two areas.

The Nature of the Person

1. Human beings will act in such a way as to achieve what they want or intend, in the quickest and easiest way that they sense or comprehend under the circumstances (Bayles 1966, p. 19).

In other words, the pragmatist assumes that the goal, the confronting situation, and insight are the three factors that need to be considered in predicting human behavior. This is sometimes referred to as the law of least action.

2. Training is transferred, that is to say, we use or apply a learned insight, when (and only when) the confronting situation offers an opportunity, we recognize it as an opportunity, and we wish to take advantage of the opportunity (Bayles, p. 22).

This has great implications for vocational education. Obvious are the relationships between the transfer of learning from school shop to work place, from the school's MIG welder to one in the work place. Not so obvious is the implication for some practices, such as the desire of the vocational educator to do follow-up studies as a way of making judgments about the adequacy of a particular program. A program with 80 percent placement in a follow-up study is judged to be less adequate than one whose placement rate is 90 percent. But experimentalists reply, suppose the student didn't wish to take advantage of the opportunity for placement.

Morris indicates that there is transaction: "A two way movement of phenomena between ourselves and the reality we can never know directly. We do things to the world, we act upon it, and then it responds, it acts upon us. We dam a stream and nature answers back with water power" (Morris 1916, p. 71).

To the experimentalist there are no two situations that are always the same, a belief that departs a little from the stimulus response bond theory. According to the experimentalist, people do tend to act according to habit patterns, but what is crucial is whether they act as before because they did it before or for the same reasons they did it before.

3. Learning is the development of insight in reference to goals. Insight is a cognitive process. It is also people's "sense" of what ought to be done as they perceive the goal, as they pursue a goal and encounter an obstacle, either anticipated or unanticipated. What they do in response to this obstacle is insight. It may be deeply perceptive or shallow. It may be comprehensive or have only a single referent; it may be vague or clear. It may be thoughtfully derived or represent snap judgment.

4. There are two parts to a person: the conative and the cognitive. The conative is the wants, desires, hopes, of the person and the cognitive represents the insight. "Ideals and ideas" is another way of expressing this concept of what experimentalists call the "twofold nature of self." Feelings are present in both aspects. The self extends beyond the body of the person to family, friends, possessions, home, etc. The expression "Love me, love my dog" sums up this part of the experimentalist philosophy.

The Nature of Truth

5. Truth must be considered temporary and conditional.

6. Reflective thinking is how we know truth.

Individuals formulate a hunch or hypotheses on the basis of who they are. Their environment, and their experiences. They then act as if the hunch were true. If the reaction obtained is what was expected, then the hunch is confirmed as temporary truth. If not, the hunch is reformulated on the bases of the most recent set of experiences and environmental conditions. The temporary truth is constantly checked for confirmation. It is always an assumption, not an assertion. Morris commented:

> We may now generalize by noting that, the ultimate test of truth is whether the hunch or hypothesis which is tried out and acted upon "really works" or does it explain the situation, rationalize the disparate phenomena that have been observed, solve the problem? In the degree that it performs this duty, it is said to be true. Hence truth in experimentalism are always in degrees, always contingently or relatively. (p. 64)

7. An insight, to be proven correct, must work in one way only.

It can lead to only one result, that is, it must predict events or behavior with accuracy. Commenting peripherally for a moment, this area is often criticized by nonexperimentalists. They say experimentalists support the telling of a lie. If the "lie" works, it is then true. This is a distortion of the experimentalist's view. Students may say that they are interested in a marketing education career as a buyer in order to get into a cooperative education program. The "lie works." Is an "untruth" made "true"? Is the student now really interested in a marketing education career. No. To the experimentalist, the lie is not proven true. What is proven is the idea that the telling of a lie got the student into the program. Whether a lie is justified to the experimentalist is another question.

Back to the main point, that insight must predict behavior with accuracy. As Bode (1921) noted:

> The investigation is completed when the conclusion is supported by a considerable body of evidence, and when it is impossible to find any facts that conflict with the conclusion, there must be not evidence to support a rival hypothesis. (p. 117)

Each piece of information, data, or fact should be in line with each and every piece of information, data, or fact.

The Nature of Culture

An educational system deals with persons as individuals. The two previous areas concern themselves with the personal. But an educational system occurs in a setting, in a culture. Individuals are being prepared to function as members of the community at large. To think experimentally, the educator needs to take full account of the culture of which programs are a part, needs to think relationally.

8. The American culture is democratic, with democracy being the form of government based on the following assumptions:

   a. All members of a culture have power to establish the laws by which it should be governed.

   b. All members of a culture have an obligation to abide by any and all such laws.

9. Democratic education focuses on the capacity for independent development of insights (independent learning ability). "Of course, it is a teacher's job to give help and guidance; otherwise why have him there? Reflective teaching does not mean that a class shall be turned over to students. . . .It does mean that the teacher's function should be essentially that of moderator of a deliberative body, responsible for its progress along educative lines rather than a purveyor of a fund of information or wisdom possessed by him, to be imparted to the receptive minds of students. Learning how to think means learning how to learn one's self" (Bayles, p. 79).

Philosophic Effort in Vocational Education

In 1977, McKinney and Greenwood indicated:

> There is an urgent need for vocational education leadership to increase skills to interpret and communicate the purposes of goals of vocational education more explicitly and logically. It has been possible to hear with increased frequency that strategies and skills for interpreting vocational education to Congress, to practitioners in the field, to the general public are weak and underdeveloped.

There appears to be a need for a broad-based re-examination of the underlying premises that support a philosophic rationale for vocational education. Some of the circumstances creating this need include: (1) the inability of the field as a whole to react to adverse critics of vocational education whether these critics are pointing to operational conceptual modes of behavior in vocational education, (2) the inability of vocational education leaders to proactively map out future direction based on theoretical bases which have gained conceptual acceptance with the field, (3) a lack of discussion and debate within the field regarding philosophical premises and issues and (4) a failure to articulate a philosophic position and communicate it to other education groups to Congress, federal agencies and the general public. (p. 1)

One of the working papers developed for the 1977 Workshop on Interpreting Vocational Education, Greenwood indicated:

A number of capable individuals within the field of vocational education have begun to work on the problem of defining a philosophy for the field. . . .

It is interesting to note in the selections that the authors often have different notions of what constitute a philosophic position. This is not to say that any of them are mistaken; the word philosophy has several different meanings. . . .

On the whole the writers of this section seem to fall into two distinct groups, which shall, as a meaning matter of convenience, be referred to as the traditionalist and the reformers, respectively. The traditionalist, including such men as Melvin Barlow and Robert Miller argue for the validity of the principles that were developed by Charles Prosser and his contemporaries in the early decades of this century. These principles, they maintain, have stood the test of time and proven their worth. Vocational education does not, in their view, need to abandon all principles and find new ones; needs rather to restate these principles in a way that expresses their relevance and application to current problems.

But perhaps, even the traditionalist would concede that something more needs to be done, beyond the formulation of principles. In looking over some of the work that has been done by the traditional leaders, a pattern emerges. Although a great deal of significant work has been done in defining the what and how of vocational education, relatively little attention has been paid to

stating the why. Thus, even if the traditional principles are correct as they stand, much work remains to be done.

Other individuals such as Ralph Wenrich, Melvin Miller, and Charles Law reject these traditional principles and maintain that a whole new set of principles must be articulated. . . .

It would be a great mistake to suppose that these two varieties of philosophic positions represent the only alternatives available to vocational education. In the final selection in this section, John F. Thompson presents a philosophic position that is clearly different from that of Byrl Shoemaker, Robert Miller, and Melvin Barlow, but not quite the same as that of Law, Melvin Miller and Ralph Wenrich. This selection comprised of the final two chapters of his book, Foundations of Vocational Education, is also noteworthy in another respect; of the selections presented in this section, it seems to offer the most complete development of why, what and how. (p. III C i-v)

In a paper developed by Charles J. Law, Jr., titled, "A Philosophy for Vocational Education," which was presented to the state directors of vocational education in 1975, he comments:

In suggesting "A Philosophy for Vocational Education," some things appear to be evident: (1) Vocational education has no clear, concise, easily definable philosophical base to which it lays primary claim. (2) The pseudo-philosophical phases upon which vocational education loosely operates are a conglomerate of beliefs indiscriminently interwoven, parts of which are mutually exclusive and often contradictory. Typically, even the most serious attempts of vocational educators to deal with philosophic issues have resulted in a discussion of surface philosophical tenets, each of which is supposedly supported by a deeper valid philosophical base for vocational education, rather than in a rigorous philosophical discourse which questions the basic reasons for the existence of vocational education.

In supporting these findings I have found sufficient evidence in the literature to state further that: (1) If we have a philosophical base broad enough to cover all our actions, it is so diffused and electic as to be almost non-existent, or (2) If we choose to select one of several versions of our so-called philosophic base, then we immediately begin to operate some facets of our program in direct opposition to the philosophy so stated. (pp. 1-2)

As literature of philosophic vocational education is examined, ways to characterize it other than as traditionalist or contemporary emerge. When one looks at what is said by all the people involved, there appears to be a more fundamental difference than that proposed by the previously mentioned workshop literature. That fundamental difference stems from the belief systems of the writers who are offering various philosophic tenets to guide vocational education. There is one group of persons in vocational education who operate from a sometimes stated and sometimes unverbalized assumption that vocational education is economic education. That is, it ties itself directly to the labor force, and the way to understand vocational education is to understand its economic background, its economic contribution to the individual and to society. Writers such as Barlow (1974), Miller (1974), and Prosser and Allen (1925), are examples of this view. Others take the position that the way to understand what vocational education is, is to see it in a larger framework of human resource development. This human resource development philosophy can be seen quite clearly in the work of Thompson (1973).

> The purposes of vocational education must be consistent with the purposes of occupational development. Occupation development has been identified as a process of growth and development that enables an individual to find a satisfying work role, to become established in an occupation.
>
> The generalized purpose of vocational education, then, is to assist an individual to grow and develop, to become separate from other things and other persons, to discover a satisfying role in an occupational area. A secondary purpose is to help the labor market maintain a balance between jobs and unemployment, between opportunities and trained manpower.
>
> Another way of saying this is that in a democratic society it is assumed that free choice of an occupation is preferred to coercion. Efficient functioning of the economy and the attainment of personal and social adjustment by workers are not opposing ideas in a democratic society. If a person has experiences that permit him to really know his own strengths and weaknesses, know the world of work, and know how to relate himself to the world of work, he will seek out a satisfying work role. The incentives provided by the free enterprise economy will ensure that various job shortages are filled. The reverse is not true. (p. 239)

The purpose of this section is to point out that there is no one philosophic theme that most vocational educators could advocate. While the economic theme is the more dominant one, it

certainly is not supported by all interpreters of vocational education. The human-development theme is not taken seriously by the persons who express faith in the economic view of vocational education. If one were to undertake the task of this paper following only one of those perspectives, one would have a consistent paper, at least consistent in its philosophical tenets, but would, in some sense distort the view that is currently held by interpreters in the field. For this reason the eighteen statements about vocational education labeled outcomes will be discussed next. We will look at those statements and then look for their philosophic support.

Vocational Education Outcomes

The task asked of the writer assumes that a series of logical inferences, which lead from the study of a philosophy to the practical matters of education, can be developed. Many writers have tried this without good success. Wingo (1965, pp. 8-15) tells why this is a route filled with many potholes and landmines.

To illustrate the difficulty, in part, take a look at the next two statements. In describing an educational curriculum based on their philosophy, these statements were developed by an idealist and a realist. Can you discern differences that will guide teachers, policymakers, administrators?

Statement Number 1

> If students are to develop their innate human capacities as fully as possible and prepare as well as possible for life as people and as responsible citizens, they must acquire, so far as they can, all four of these basic complementary skills:
>
> - Logical linguistic (think clearly and consistently, use language accurately)
> - Factual (learn a great many facts about self and one's physical, social, and cosmic environment)
> - Normative (judging according to some standard of value)
> - Synoptic (see things in a wider and deeper perspective).

Statement Number 2

> There is certainly a basic core of knowledge that every human person ought to possess in order to live a genuinely human life as a member of the world community, of the nation, and of the family. This should be studied by every student and should be presented at levels of increasing complexity and discipline throughout the entire curriculum. First of all, (1) students should learn to use the basic instruments of knowledge, especially their native language . . . . Then, (2) they should become acquainted with the methods of physics, chemistry, and biology and the basic facts so far revealed by the sciences; (3) they should study history and the sciences of man; (4) he should gain more familiarity with the great classics of their own and world literature and art; (5) in the later stages of this basic training, they should be introduced to philosophy and to those basic problems that arise from the attempt to integrate knowledge and practice.

There are differences in education that these philosophers do not identify. These differences stem more from different theories of schooling--the differences in practice of teaching and learning within the classroom (see the "Introduction" to this paper).

A second situation is the question of which aspect of a philosophy one uses as a referent. The overall philosophical framework chosen to look at these outcomes is experimentalism. But whose experimentalism? Experimentalism is not a "pure" perspective. There are ideal-experimentalist, real-experimentalist, and so on.

There is also a third notion that might best be labeled a "mind set" on the part of vocational educators. This mind set is one of reductionism. Reductionism reduces complex phenomena to simple terms. One simple explanation is used for several complex situations. Vocational educators are often guilty of this way of thinking. It is assumed that since a physical law such as certified force can be used to explain several phenomena observed in a shop, the same can be done in biological and social sciences. Biological and, to a greater extent, social sciences are not nearly as precise as the physical sciences, and these simple explanations are not generally available for complex phenomena.

If readers accept these misgivings on the part of the writer, they are prepared to proceed, that is, to "rush in where the wise person fears to go."

We now turn to the specific outcomes of vocational education. These outcomes are provided through another effort, and

the task is not to question whether or not they are legitimate outcomes, but to examine philosophy to see if there is philosophical support for the outcome. I have chosen the experimentalist philosophy as the overall framework to be used to examine these outcomes. Farley (1979) stated "Vocational education outcomes are broadly defined as the consequences of vocational programs" (p.1). This puts us in a dilemma to start with because to say that these outcomes are the consequence of student participation in the vocational education programs puts us philosophically in the box known as ends-means, the means being participation in vocational education and ends being, of course, the outcomes. Certainly for the experimentalist the whole notion of ends and means is a central question. Dewey, among others, regarded these value judgments as objective and thus spent a great deal of time talking about the interdependence of ends and means. In fact, at one point, he was willing to say that the ends-means discussion was the important aspect of philosophy.

What will follow in this section is a statement of the outcome, followed by its explanation. Then I will follow with a paragraph or two indicating how experimentalists would generally regard this outcome. It is important to keep in mind the nature of experimentalism. Since it is by nature a field theory, the total philosophy comes to bear on a particular outcome, not a separate or single assumption. It does not permit any type of reductionism. It is possible to use a specific assumption as a beginning point or clue in the philosophy, as a connection is looked for between the outcome and the philosophy. These clues are provided.

OUTCOME NUMBER 1: Increased awareness of need for basic academic skills

Explanation: Student participation in the application of mathematics, reading, and writing in a work experience increases student awareness of the need for learning these skills.

The outcome states simply that as a consequence of participating in vocational education programs, the student emerges with an increased awareness of need for basic academic skills. The outcome, of course, makes certain kinds of assumptions. It assumes that knowledge must, or at least should, be applied. It assumes that there is a connection between participation and awareness. And it assumes that there are at least two types of skills--basic academic skills and some other unnamed group. As we look at this philosophically as an experimentalist might, we would not find a lot of support or interest in the idea of basic academic skills. We need to raise the question at a more fundamental level. As we think our way through this particular outcome, we need, then, to ask what the experimentalist view is in terms of curriculum.

Curriculum for the experimentalist comes from the growth needs and the life experiences of the student. It is not fixed or static. Kilpatrick (1942) had this to say:

> In the sense formally understood by subject-matter requirements there is not much that I should care to name in advance that must in the end be learned and still less should I wish to state when it will be learned. I know that there is a considerable body of common knowledge and common skills that any decently educated group will show; but I don't believe that naming this body in advance is a helpful way to begin. (p. 77)

As for the experimentalist, to make judgments about this outcome it is necessary to know what is in the mind of the vocational educator in stressing this outcome. If it is a predetermined outcome, that is, people are encouraged to enroll in vocational education so that they can indeed increase their awareness of the need for basic academic skills, then the experimentalist could not support the outcome. If, on the other hand, the increased awareness is a natural consequence of one's participation in vocational education, then it is supportable. One must remember that the context is very, very important. The experimentalist would need to know the contexts in which vocational students find themselves before making final judgments about this outcome. If the context is a poor home environment where certain types of academic skills are not emphasized and the student needs to acquire those skills in order to be a good participant in society, then they are also supportable. Bayles (1966) had this to say about content:

> But what of content? What imperative covers the subject-matter of study? What is to be taught? On this question, a teacher is not to be neutral even though he is to be non-partisan or non-indoctrinative. School time is to be well-spent, not frittered away. What is given place in the curriculum must be educationally significant. . . .
>
> Basic principles to be employed in the choice of subject-matter should seemingly be expressed in terms of insights to be gained. This in no way denies that skills and attitudes ought also to be sought; it is merely recognition that changes in attitude consequentially follow changes in insight and that, in accordance with the principles of least action, performance in any given situation and toward any given end is the consequence of insightful design. Though we admit and indeed insist that education should be concerned with both the cognitive and conative, we recognize that changes in the cognitive are precedent to and entail changes in the

conative; hence to repeat, what is to be studied should be expressed in terms of insights to be gained. (pp. 94-95).

Here is where there is a need to make one of those "logical inferences" referred to a few pages ago. And it is not possible to share all or even a major part of the writer's thinking process behind the inference. The writer "knows" vocational educators are generally concerned about the growth of the student (insights). The basic skills are not ends but a means to student growth. Therefore experimentalist philosophy can support this outcome. Assumptions 1 and 3 are the logical beginnings in understanding how the experimentalist views this outcome.

As we move to other outcomes, the writer does not plan to be this elaborate or perhaps this defensive. The inferences that he makes will be specified to a lesser degree than here.

OUTCOME NUMBER 2: Satisfactoriness to employers

Explanation: Participation in vocational education results in employers considering former vocational education students to be well trained and prepared for employment.

To gain a perspective from an experimentalist view on this outcome one must consider first the context in which schools are situated. Experimentalists would argue that in addition to a sense of community within the school system the system needs to extend out into the community. The back and forth, forth and back relationship that was talked about earlier is also true when it comes to the school and its community. That is, the school does not exist in isolation. It is a part of a larger something, (i.e., a community).

Within the community there are many points of view, and these points of view will most likely be reflected in the school. The experimentalist would have no difficulty in supporting the notion that the result of education should be satisfactoriness to employers. If, however, the employer is a dominant group, then there would be some difficulty. That is, if the end of education were to prepare workers who were primarily satisfactory to employers, then the experimentalist would have extreme difficulty with it. If in satisfactoriness to employers is also included satisfactoriness to parents, to government leaders, to political and other community groups, then the experimentalist would have no difficulty with this as an outcome. A more basic question would be how satisfactory the students are for life. Are they prepared to live the democratic life that is expected of them?

Earlier in this paper a distinction was made between those who view vocational education as economic education and those who

view it as human development education. This outcome is a major aspect of the economic perspective. Those who hold this view would see the employers as a dominant group, and thus they would depart rather dramatically from the experimentalist perspective. The basic question of how well prepared the student is for life is a major aspect expressed by those who favor a human development perspective.

OUTCOME NUMBER 3: Trained workers for labor market needs

Explanation: Participation in vocational education assists individuals in acquiring occupational skills needed to fill employment needs of business and industry.

Here it is important to understand what vocational education means by trained workers and labor market needs. As Prosser and Allen (1925) developed their economic theory of vocational education, they commented:

> Invention and discovery are continually creating new devices and new processes. These in turn make necessary for their development and efficient use, new tools, new appliances, new operations, and new methods to which both workers and leaders must be continually adapted and readapted. This adaptation can be made only as new skills and new technical knowledge can be rapidly transmitted and diffused to a great number of products.

Following this line of reasoning, you could readily see that vocational education interprets this outcome in a very narrow way. The focus is not on the individual but rather is on labor market needs. The emphasis is on shaping an individual to meet these needs.

The experimentalists have difficulty with this outcome. John Dewey (1916) was not opposed to vocational education but was very opposed to its being cast in such narrow terms. He indicated:

> No question at present under discussion in education is so fraught with consequences for the future of democracy as the question of industrial education. Its right development will do more to make public education truly democratic than any other one agency now under consideration. Its wrong treatment will as surely accentuate all undemocratic tendencies in our present situation by fostering and strengthening class divisions in school and out. It is better to suffer a while longer from the ills of our present lack of system till the truly democratic lines of advance become apparent, rather than

separate industrial education sharply from general education, and thereby use it to mark off to the interests of employers a separate class of laborers. (p. 274)

Those who believe in the continued separate existence of what they are pleased to call the "lower classes" or the "laboring classes" would naturally rejoice to have schools in which these "classes" would be segregated. And some employers of labor would doubtless rejoice to have schools supported by public taxation supply them with additional food for their mills. All others should be united against every proposition, in whatever form advanced, to separate training employees from training for narrow industrial efficiency. That the evil forces at work are not local is seen in the attempt to get the recent national convention on industrial education in Philadelphia to commit itself in favor of the Illinois scheme.

The only serious danger is that a number of sympathetic and otherwise intelligent persons should be misled, and on the basis of a justified enthusiastic support of the principle of industrial education (with whatever supplementary agencies may be found necessary) jump to the support of this scheme, not realizing what is really involved in it. Such persons should first inform themselves as to what is already being done in this direction in the more progressive public schools, and should then devote their spare energies to backing up and furthering these undertakings, and to creating a public opinion that will affect the more backward and conservative public school systems. The problem is a difficult one, but many intelligent, tho unadvertized, attempts are already making for its solution; and its difficulty is no reason for permanently handicapping the interests of both common school education and a democratic society by abruptly going back upon what, with all its defects has been the chief agency in keeping alive a spirit of democracy among us--the American public school system. (pp. 276-277)

Thompson quoted earlier indicated that vocational education would be better served if it did not emphasize one aspect of the development of the individual over another. He further believed that:

Vocational education can be more important to individuals if it recognizes that a man's occupation is the greatest factor in determining his entire lifestyle in addition to earning his living. A means to earning a living is very important to the individual and acquiring skills is a necessary and vital part of one's education.

> A program that puts nearly all of its emphasis on developing job or intellectual skills is not defensible as both sets of skills are needed by all citizens.

The narrowness of this outcome, as indicated, is not supportable by the experimentalist. It runs the risk of developing an unbalanced individual, an individual prepared to participate in one aspect of society but not necessarily prepared in other aspects. It is incompatible with the assumptions the experimentalists make about the culture.

OUTCOME NUMBER 4: Motivation for educational and occupational achievement

Explanation: Participation in vocational education programs increases and strengthens student incentive for educational and occupational achievement.

In Democracy and Education Dewey (1916) commented, "Past events cannot be separated from the living present and retain meaning. The true starting point of history is always some present situation with its problems" (p. 251). The principle for the experimentalist here is problem-centered and learner-centered learning. This means that for the experimentalist the education process must begin with the learners' identification of their own interests and concerns. This is one of the strengths of the methodology of vocational education. Most often the problems and issues being investigated, being discussed, being worked out are indeed ideas, problems, technology that interest the student. This procedure for teaching may indeed take a little longer than other methodologies, but again Dewey commented:

> The apparent loss of time involved is more than made up for by the superior understanding and vital interests secured. What the pupil learns he at least understands. Moreover, by following, in connection with problems selected from the material of ordinary acquaintance, the methods by which scientific men have reached their preferred knowledge, he gains independent power to deal with material within his range, and avoids the mental confusions and intellectual distaste attendent upon studying matter whose meaning is only symbolic. (p. 258)

Thus the experimentalists can support this outcome as being consistent with their philosophy. They would hope, however, that the motivation would extend beyond educational and occupational achievement. They would desire that it be an ingrained attitude on the part of workers as they live out their lives in society: that there would be meaning, enrichment, fulfillment, happiness, motivation for all of these things as a result of their education activities.

OUTCOME NUMBER 5: Placement in a job related to training

Explanation: Students completing a vocational education program are employed in jobs that are related to their training.

If outcome 3 is troublesome to the experimentalist because it is narrowly conceived, then the same is true for this outcome. If the end of the curriculum is a job for which society or some company in society has a need and if evaluation of that program were based upon whether or not the student actually gets the job, then the experimentalist has difficulty both with the ends and the means. Again the difficulty is not that people need to work or that students who graduate from vocational education should get jobs. The difficulty is in the narrowness with which that concept is pursued.

OUTCOME NUMBER 6: Acquisition of useful occupational skills

Explanation: Students in vocational education develop those occupational skills necessary to perform adequately the job for which training was provided.

An understanding of the term useful as used in this context is important. The explanation suggests that useful means "to perform adequately" a job for which "training was provided." In other words, useful is judged to be useful. We have the beginning of a tautology here. If it is not useful, then why teach it.

The experimentalist, on the basis of 2, 3, and 6, would want all knowledge to be useful. But the experimentalist would have a different definition of the term. Useful would mean helping the individual to grow; for the experimentalist, the end of education is growth. Montgomery (1953), in his article entitled "John Dewey and the Continuity of Growth," put it this way:

> There is no stopping in living except at the end of it. There is no stopping in learning either. But whether you learn to make good use of living, of today, or remain content to meander along the years from one pillar of accident to another post of misfortune is a matter of accepting or rejecting the on-going nature of things. By accepting you can make every moment in the whole span of life count for something.
>
> Living is continuous. It does not obey any Stop-and-Go signals. It is not a series of stepping stones but a swift race, from sudden birth to an equally sudden death. We speak of way stations on the highway of life,

but no one stops at the stations. They are only signposts which someone has time to set up while on the run.

Learning is continuous, too. You can't go anywhere except where you are. You can't learn anything you are not ready to learn. If at this moment you are not practicing your trigonometry, at the next moment you will not be practicing your calculus. There is a continuity in growing, whether it is growing mentally, physically, or spiritually. And the only time you have to act in that continuity is right now, today, the only time life presents to you, the present. (pp. 215-216)

Thus the experimentalist can accept the outcome of the acquisition of a useful occupational skill if that skill is used to help the individual grow in occupational life, community life, social life.

OUTCOME NUMBER 7: Positive attitude toward work

Explanation: Participation in vocational education results in former students having a positive feeling for their work and respect for the rules of the work place.

On the basis of the position of the experimentalist outlined in outcome 6, the experimentalist would have no difficulty with outcome 7. It is assumed that a positive attitude toward work would be only one aspect of positive attitudes; further, education should give the individual positive attitudes about other things. If that is true, the experimentalist would support this outcome.

OUTCOME NUMBER 8: Increased productivity

Explanation: Participation in vocational education results in former students being more productive workers than those individuals who did not participate in vocational education.

More productive than whom? Fellow workers? Those who have not received vocational education? This outcome has to be examined normatively in order to be of any sense philosophically. It probably should be stated as follows: participation in vocational education should lead to increased productivity on the part of former vocational education students. No phrase could probably be more repugnant to the experimentalist. The basic disagreement with the outcome would be the notion that it is undemocratic; that is, it is antithetical to the nature of our culture, which is democratic. Bayles indicated:

> Democracy means equality of opportunity on the part of the members to participate in the establishment of whatever rules and regulations (or laws) are deemed needful. An equality of obligation to abide by them until they are abolished or changed seems to include all three aspects that we have so far noted as needful. It places the law making authority in the hands of the people; it specifies law abidance on the part of all; and it places all on an equal basis---no hereditary or arbitrary difernce in rank or privilege. (pp. 69-70)

To look at the statement or the otucome here and to support it would be to support an undemocratic tendency. That is, to support the outcome is to agree that education should ultimately produce one class of workers, one class of citizens, who are better, more productive, than another class. That is, workers who have had vocational education are better, in this case more productive, than other types of workers. This is simply not supportable.

OUTCOME NUMBER 9: Development of safe work habits and techniques

Explanation: Participation in vocational education results in workers' learning procedures and techniques needed to insure safety on the job.

As with outcomes 6 and 7, who can be opposed to apple pie? It is assumed that any education should develop safe work habits and techniques on the part of workers, on the part of citizens. The instructional program would certainly not intentionally teach unsafe work habits or techniques. The experimentalist would assume that as a part of the instructional program workers would naturally acquire the safe procedures and techniques that are needed on the job.

OUTCOME NUMBER 10: Increased earnings

Explanation: Participation in vocational education increases the wages or salaries of workers.

As indicated earlier, this statement is not at all philosophical. It could be classified as scientific. If it is scientific, all one needs to do is to look at research and other types of studies concerning the participation of vocational education graduates in the labor force; if they earn more money, then you can agree, if they earned less, then one would disagree with the

statement. That is, it is provable or not provable in a scientific sense. To look at the statement philosophically, one needs to put it in normative terms again; that is, participation in vocational education should lead to increased earnings. When one casts it in normative terms, one raises lots of questions: More earnings compared to whom? Their fellow workers? More income than people who have not had the education, and so forth?

Again, as outlined in number 8, when it is seen in this light, the experimentalist cannot support the outcome. It is undemocratic. It is against the basic nature of our culture to design an educational program that gives one group of citizens in our country an advantage over another. If that is the intent of the instructional program, it is undemocratic, and support for it cannot be inferred from an experimentalist perspective.

OUTCOME NUMBER 11: Enhanced leadership capabilities

Explanation: Participation in vocational education enhances an individual's capacity to be leaders.

It is difficult for the writer of this paper to get a perspective on this particular outcome, since he has searched quite diligently for insight from vocational education literature to discover exactly what the term leader means in vocational education. From this context I have concluded that separatism is not being promoted here. That is, the vocational education literature is not suggesting that the person who has had vocational education has more leadership skills than other citizens. But it is simply stating that the vocational education program takes whatever innate ability the individual has in terms of leadership and helps that individual develop it. If that is the perspective, then the experimentalist can support the position. Morris (1916) presented it this way:

> Learning is essentially growing. And growing, in Emperimentalist language, means the increase of intelligence in the management of life; and this in turn means the expansion of reflective thinking and the consequent application of thought to action in the wide reach of affairs we honor with the name "human." If we are to produce growth effectively we must turn the whole learning process, as traditionally conceived, upside down. That is, we must start with the affairs, wherever we may meet them, and let those affairs dictate what should be learned and know to manage them properly. Hence the entire curriculum would be inverted from subject-matter, which is intended to be applied later to life situations, to the life situations themselves, which provides the kinds of learning in or between subject-matter areas that intelligent living calls for. (p. 99)

It is very important to the experimentalist that growth be the outcome of education, that the life situation, the context in which one finds the education, be considered. As we indicated, enhancing the innate leadership capabilities that grow out of the life situations of individuals, is very supportable to the experimentalist.

OUTCOME NUMBER 12: Upgraded occupational competencies

Explanation: Students in vocational education acquire skills that are needed to stay current or advance on the job.

From a normative perspective this statement suggests that the vocational education graduate should acquire the skills that are needed to stay current or advance on the job. From this perspective it is supportable by the experimentalist. Montgomery (1973) provides some insight when he talks about "John Dewey and the Death Valley Daze." He indicates:

> In order to change this concept so that schooling might actually have the power to produce the ends it was supposed to be seeking, Dewey began to emphasize the notion of the end-view or purpose as it operated within specific situations. In a specific situation the purpose had to become the means for achieving objectives within sight. It had to be translated into immediate objectives and the program for reaching them. If schooling were to result in growth, the ends had to be in view of the students continuously, as concrete realities which were near enough to be chosen, sought, and accomplished.
>
> In the phrasing of Dewey, only when the end 'becomes so adequate that it compels translation into the means that embody it, or when attention to means is inspired by negotiation of the end they serve' will the student be moved to adopt the attitude of practices and experience which produce real growth. If these conditions are fulfilled, ends and means become inseparably connected in a plan of action. The consequences sought are themselves means to new consequences. The process is self-moving. Each accomplishment, if it is to be educative, must function as the means to greater accomplishment. True education never reaches a static, fluid state. (pp. 274-275)

Any comment here seems to be superfluous. Basically, the experimentalist would hold that education is growth. It is never static, never ends. One education experience leads to another. The student constantly has goals in view, and as these goals are operationalized and achieved, they become means to achieve other goals. Thus, truly educated persons will have learned to upgrade

their occupational skills. They are sensitive to their environment, and as this environment or context in which they find themselves is perceived to be changing, they themselves will change.

OUTCOME NUMBER 13: Increased potential for entrepreneurship

Explanation: Skills acquired in vocational education increased the potential of former students to organize, operate and assume the risk for business ventures.

An entrepreneur is one who "organizes and manages a business undertaking, assuming the risk for the sake of the profit." But entrepreneurship is only one type of business venture. It is not clear what the intent of vocational education is on this point.

The author of this paper personally promotes entrepreneurship; in fact he sometimes says that "entrepreneurship should be a required course in all high schools." But that is not at issue here. The issue is whether experimentalists can support the notion that vocational education students have increased potential for entrepreneurship. The evidence is not conclusive. If we interpret the statement to mean that vocational education increases the potential of former vocational students to organize, operate, and assume risks for any business venture--and by implication for increased entrepreneurial behavior--then the idea is supportable. But if the intent is entrepreneurship as a preferred type of education over another type of education, then it is not supportable.

OUTCOME NUMBER 14: Enhanced job advancement

Explanation: Participation in vocational education results in workers' having the skills and abilities that will enhance their prospects for advancing on the job.

The experimentalist cannot support this outcome, simply on the basis of the reasoning in outcome 12. The experimentalist cannot support a type of education based on the premise that it will give the student an advantage over people who have not had it, and that clearly seems to be the intent of this outcome. If the intent of the outcome were a little more general, simply that vocational education enables workers to experience job advancement, then it would be supportable. But as it is worded, there does not seem to be any support within the experimental framework for it.

OUTCOME NUMBER 15: Increased job satisfaction

Explanation: Participation in vocational education provides students with cognitive, effective, and psychomotor competencies that contribute to their fulfillment or gratification on the job.

The experimentalist can support this outcome as worded. The rationale for its support is contained in the discussion of outcome 12.

OUTCOME NUMBER 16: Improved quality of work

Explanation: Participation in vocational education results in former students' being able to do excellent work in the jobs for which they were trained.

Like 15 this outcome is supportable, and the rationale for its support is similar to the rationale developed in outcome 12.

OUTCOME NUMBER 17: Retrained workers

Explanation: Vocational education provides programs for those persons who need to acquire skills for a new occupation.

The experimentalist would see this as similar to outcome 12. It is supportable. Again, the rationale developed in 12 would provide the support for it from the experimentalist viewpoint.

OUTCOME NUMBER 18: Reduced dropout rate

Explanation: Participation in vocational education results in secondary students and postsecondary students remaining in school until they have achieved their goals.

The experimentalist would probably support this as an outcome of vocational education simply because it cannot support the antithesis. It is imperative from the experimentalist view that one achieve as much as one is capable of in the educational setting. That is, total innate abilities must be developed. Anything less than that cannot be supported. Montgomery (1953), describing "John Dewey and the Seven-Eyed Teacher," commented:

> Such choices involve the welfare of the society. There is no such thing as a static society. Groups either continue to progress or they retrogress. Retrogression is characterized by the absence of free experimentation and

> the expression of novelty, by the lack of shock and challenge. It takes a long look ahead to keep a group moving forward in its growth and development. Leadership has the duty of taking that look, and in the teaching-learning process the teacher is the leader. The teacher has the responsibility of removing the cultural blinders from his students' eyes and suggesting the novel view, the radical experiment, the progressive change. The democratic objective of the free person is the teacher's objective. He is charged with finding ways by which the students may develop attitudes of welcoming change as desirable and novelty as natural.
>
> It is difficult to see how the teacher can fulfill this duty without being a person of vision and competent knowledge of social process. Without a philosophy, a teacher has no power to lead his students towards social awareness, for he has no goals, no ends in view which are consistent in enlightening the useless activity from the activity productive of freedom and growth. If one lack of our present school system is more glaring than another, it is this absence of personal philosophies of real power among teachers. This may be due to the insistence of administrators that teachers be tradesmen and methods-dispensers instead of well-rounded fullbodied citizens. Whatever its cause, education through, by, for experience demands a correction. Teachers must know educational theory and have philosophies of their own.

Montgomery is suggesting that, to teachers, the challenge is to help all students remove cultural blinders, to help them have goals, to help them have ends, to help them see the need for their continued participation in educational activities. If that is our intent, then, it is clear that the experimentalist would want to do all in his or her power to retain students in educational programs.

Summary

This paper has presented overviews of selected philosophies with hints of their implications for education. A distinction is drawn between a philosophy of education and a theory of schooling. The former may not differ in substantative ways about outcomes of education, while the latter does show major differences. Experimentalism as a philosophical perspective was chosen as the framework for examining these eighteen outcomes of vocational education.

The task assigned assumes that one can make a series of logical inferences from the study of philosophy that are tied to practical differences in education and vice versa; that is, an

idealist philosophy--idealist teacher--idealist teaching--consistent idealist practice of education. The difficulty with this logic is pointed out.

Figure 3 presents a summary of the outcomes of vocational education as seen from the experimentalist philosophy. Basic assumptions judged important in experimentalism are listed down the left-hand side of the figure. The 18 selected outcomes and their support within experimentalism are shown down the right-hand side of the figure.

Experimentalism is a field theory. In examining an idea, the whole or pattern needs to be examined in context. Nothing exists in isolation; each item gives meaning to the whole, and the whole to each of its parts. It is to and fro, fro and to. Thus, each selection outcome of vocational education needs to be examined in its whole context, vocational education, education; teachers, students, parents, administrators; school, community; social, psychological, and economic foundations; and so fourth.

Eleven of the outcomes were judged to be supportable according to the philosophy of experimentalism. Generally, these were outcomes related to what was acquired by the individual student in the vocational education program: increased awareness of need for basic academic skills, positive attitude toward work, retrained workers, and so on. Those 6 outcomes judged as not supportable according to the experimentalist philosophy were such ideas as satisfactoriness to employers, trained workers for labor market needs, and placement in job related training. These outcomes are beyond the classroom, and involve the interface of vocational education with some other systems such as the economic system. In two cases, outcomes were judged unclear when examining experimental philosophy for support.

FIGURE 3

PHILOSOPHICAL EVIDENCE AND SELECTED VOCATIONAL EDUCATION OUTCOMES

Basic Assumptions of Experimentalism	Outcome		
	Number	Degree of Suppport	
		Yes	No	Unclear
A. The nature of the individual				
1. Human beings will act in such a way as to achieve what they want and intend, in the quickest and easiest way that they sense or comprehend under the circumstances.	1. Increased awareness of need for basic academic skills	x		
2. Transfer occurs when (and only when) a. the confronting situation offers an opportunity; b. we recognize it as an opportunity and; c. we wish to take advantage of the opportunity.	2. Satisfactoriness to employers			x
	3. Trained workers for labor market needs		x	
	4. Motivation for educational and occupational achievement	x		
3. Learning is the development of insight in reference to goals.	5. Placement in a job related to training		x	
4. There are two parts to a person: conative (ideals, events, desires, hopes) and cognitive (insights, ideas).	6. Acquisition of useful occupational skills	x		
B. The nature of truth	7. Positive attitude toward work	x		
5. Truth must be considered temporary and conditional.	8. Increased productivity		x	
6. Reflective thinking is how we know the truth.	9. Development of safe work habits and techniques	x		
7. An insight to be proven must work in one way only.	10. Increased earnings		x	
	11. Enhanced leadership capabilities	x		

FIGURE 3--Continued

Basic Assumptions of Experimentalism	Outcome			
	Number	Degree of Suppport		
		Yes	No	Unclear
C. The nature of culture				
8. The American culture is democratic, with a democratic form of government.				
a. All members of the culture have power to establish the laws by which it should be governed.				
b. All members of a culture have an obligation to abide by any and all such laws.				
9. Democratic education focuses on the capacity for independent development of insight (independent learning ability).	12. Upgraded occupational capabilities	x		
	13. Increased potential for entreprenuership			x
	14. Enhanced job advancement		x	
	15. Increased job satisfaction	x		
	16. Improved quality of work	x		
	17. Retrained workers	x		
	18. Reduced dropout rate	x		

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QUESTIONS AND ANSWERS ON
"SELECTED VOCATIONAL EDUCATION OUTCOMES:
A PHILOSOPHICAL PERSPECTIVE"

Question: In the full arena you have two different sectors at work. One emphasizes a sort of realism, of the way things are; the other stresses understanding of human development. These seem to be constantly competing. Why do they have to be in there? Or if they are, how can we more effectively address those two issues as you think of the outcomes? This also seems to tie with the notion that we should take a look at this from a holistic rather than an individualistic approach to outcomes.

Thompson: That is the type of question that gets at the basic nature of philosophy in one sense, and the basic nature of what we are in vocational education on the other. I felt it was necessary to choose one philosophical perspective to address the outcomes. By choosing one philosophy and trying to be consistent within that particular philosophy, I have accentuated some of those problems. I am convinced that vocational education is not a philosophy. It may be a theory of schooling, as I have outlined, but it is not a philosophy. That's one thing we have to address as we look at those relationships. We may be asking more of vocational education than it is capable of delivering.

Question: Why did you choose the experimentalist philosophy?

Thompson: I began by raising concerns about what the various fields of philosophy represent. I can characterize these various fields in this way. Suppose there were a number of philosophical upires umpiring a baseball game, and each of those umpires had a different philosophy. The idealist philosopher would say, "I call them the way I see them." What that would mean would be that the individual, having some notion in mind of what a strike is, compares what is seen with an ideal to see how the two correspond. The realist would say, "I call them the way they are." That is, there is an objective reality out there that can be measured, that can be confined and refined, and put into some sort of a box. You compare in a scientific sense the objective reality with what is observed; if it corresponds, it's a strike, and if it doesn't, it's not a strike. But the experimentalist

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NOTE: The questions were generated by buzz groups at the Working Conference. Dr. Thompson's responses were transcribed and edited.

would say, "Okay, time out, everybody come on in here. Let's make a group decision." That is, everybody who has seen the event gather around. All of you describe what you have seen, and together we can come up with some notion of whether or not it was a strike.

That gets you into some of the problems. Experimentalism has good correspondence with what I understand vocational education to be. Had I looked at vocational education from an idealist perspective, I would have rejected far more of the outcomes. Had I looked at if from an existential view, I probably would have accepted more of the outcomes. Philosophical support can be found for each of these outcomes, but it would be inconsistent. In this task, I judged consistency to be important.

Question: Why did you not use more of Whitehead's thoughts?

Thompson: Whitehead is represented as a part of the more idealistic school. I did not use any of Whitehead's specific notions, though his book, Aims of Education, and a number of his other ideas were very helpful. Since I think he is represented in the idealistic school, I did not use him specifically.

Question: To what extent can philosophy help get the shoulds closer together with the cans in vocational education?

Thompson: Many of the statements or outcomes are not philosophical statements. Philosophers could not respond, cannot respond, with a number of the outcomes stated as they are, because they are very factual in nature. It does lead to increased earnings or it doesn't. Since there is nothing to philosophize about, I had to put some of those in another context. I chose the normative context, one that is fairly well understood in philosophy. It allows the "should" question to be raised, and then we have some ground for looking at it philosophically. If we look at the shoulds and then at reality, what you call cans, I think we find there the same thing we find with all other human endeavor. And that is that the shoulds will always be ahead of the cans. I hope our shoulds, our aspirations, our hopes for the discipline, are always slightly ahead of what the discipline is delivering.

Question: How would you respond to the notion that classrooms are not a separate part of society?

Thompson: Pragmatists and experimentalists would very much agree that the classroom is a part of society, they do not want to separate them. What happens in the classroom must relate to the community and eventually to the whole life of the individual, although that may be an artifical distinction.

Question: Is there any compatability between the experimentalist view and the economic viewpoint presented? This speaks directly to the number 3 outcome, where it is pointed out that if the focus is not the individual but the labor market, and if there are not jobs at all, why in the individual being trained, and why is that an outcome?

Thompson: I point out that while society is very pluralistic, vocational education is also pluralistic. I'm not sure we want it any other way, I'm not sure we want a monolithic discipline. Certainly since the thirties, and maybe even much earlier, we can identify people who represented perspectives at variance to the main stream of thought. If you go back to the founding of vocational education, it was tied very tightly to the economic system. There were very valid reasons for doing that at that particular point in time. We often continue to accept the theorem long after the reason for its formulation has disappeared. The counter to the economic perspective is a whole human development perspective, which begins with the individuals and then considers the job market; whereas the economic view begins with the job market and then goes to the individual. It is a matter of perspective. The term human resource development is a very popular term today (e.g., the last several yearbooks of the AVA). Also look at definitions. Merle Strong's chapter in the last yearbook titled "Human Resource Development" does not describe human resource development education. It describes economic education. Merle has just used a new term that describes something that is very different. He used a catchy, modern phrase to describe something that was very different from what he was describing. He misused the term. The terms get all mixed up, and so we have to go back and make sure that we clearly demark what we mean. I happen to be one of those who believe in human resource development as a philosophy of vocational education. I'm not trying to put down the need for society to train for jobs; I put it very high on my list that people do indeed need jobs, and society needs people who perform jobs. Human resource development is not opposed to that, but it says that very early in the game, if not first, you should look at the kinds of life-styles to which individuals aspire. From the life-style, determine what they need to fit into that life-style. Well, we know an occupation is one of the things they need for that life-style. Experimentalists are not opposed to labor market needs. It is how they are cast that turns out to be the problem.

Question: How did you reach your conclusions related to entrepreneurship? Do you make a distinction between entrepreneurial behavior and entrepreneurship?

Thompson: I believe firmly in entrepreneurial behavior. I feel so strongly about it that it gets in my way in judging the

outcome. The literature in vocational education confuses these two terms.

Question: What about ownership of a business versus the ability to take the risks of your idea for the sake of profit?

Thompson: As I understand experimentalism, I don't think there is anything in the philosophy that innately says there is something wrong with entrepreneurship or entrepreneurial behavior. So it would support most of the entrepreneurial behavior that we could identify. Where it would have difficulty would be if that entrepreneurial behavior were promoted as the exclusive kind of behavior that the educational system ought to produce. One has to look at the intent, from the experimentalist view, of the person offering the training. Experimentalism as a philosophy is not opposed to private ownership of business, not opposed to the free enterprise system.

A CAREER DEVELOPMENTAL SCHEMA FOR VOCATIONAL EDUCATION OUTCOMES: A PSYCHOLOGICAL PERSPECTIVE

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Introduction

The career psychological perspective, in contrast to others (i.e., historical, educational, economic, sociological) looks at the interface between the individual and the organization. Moreover, it views this relationship developmentally--what its parameters and process are, projected across the time span of the individual's work/life cycle. It is both theoretically recognized and empirically established that career behaviors change systematically over time (Crites 1965; Super 1957). Therefore, any discussion of the impact of a stimulus variable, such as vocational education, upon career behaviors (outcomes) must necessarily consider the developmental context within which they change. Otherwise, it would be impossible to analyze effects attributable to development and to vocational education.

This analysis of the outcomes of vocational education, therefore, focuses upon how they can be sequenced along the career developmental continuum in a psychologically meaningful manner. The paper deals first with the problem of how the eighteen outcomes of vocational education previously identified might be sequenced along the career developmental continuum and how this ordering might be tested empirically against judges' rankings. It then considers job satisfaction and job success as the ultimate outcomes of vocational education and proposes a conceptual schema in which they are theoretically related by projecting their developmental curves across time. The analysis concludes with some implications for future model-testing and for programming vocational education.

The Outcomes of Vocational Education: Identification and Selection

The initial survey of the outcomes of vocational education conducted by the National Center for Research in Vocational Education (Farley 1979) yielded over 250 outcomes that have been attributed to vocational education. From these, thirty-one were selected as being most appropriate for vocational education. These were then reduced to a final set of eighteen, which were proposed as the most salient outcomes of vocational education. What is meant by vocational education, however, was not explicitly defined. Obviously, the definition of vocational education directly affects

what the expected outcomes might be. If vocational education, as a stimulus intervention, is comprised only of cognitive learning, then it would not be expected that affective outcomes would be realized. Included in the list of outcomes are both skill attainments and attitudinal dispositions that define both intellective and cognitive behaviors. It is assumed, therefore, that vocational education has an effect upon nonintellective as well as intellective aspects of career development. Thus, the outcomes of vocational education are presumed to be behaviorally comprehensive and pervasive.

From a review of the eighteen outcomes of vocational education identified by the National Center, it is apparent that they encompass such behaviors as "acquisition of useful occupational skills" as well as "motivation for educational and occupational achievement." Clearly, these are both intellective and nonintellective outcomes of vocational education. There is abundant evidence that most of these outcomes are real effects of vocational education programs, if defined to include attitudinal and affective components. There is no question, for example, that students exposed to systematic interventions on career maturity not only change their attitudes toward decision making, but also become more effectively functioning individuals in other areas of life adjustment. They obtain better grades in school; they have higher supervisor's ratings in training programs; and they are judged as more satisfactory to employers (Crites 1971; Super and Overstreet 1960; Spokane and Oliver forthcoming). Furthermore, there is evidence that enhanced maturity of career attitudes is related to reduced dropout rate in secondary school (Das 1962) and to heightened motivation to achieve educational and occupational goals. Similarly, once on the job, those who had been exposed to systematic vocational education programs that included emphases upon not only skill acquisition but also career development were better adjusted in many areas of vocational functioning--quality of work, enhanced job advancement, and increased job satisfaction.

In reviewing this evidence on the psychological outcomes of vocational education, it became apparent that they were not unrelated to each other. Even a cursory perusal of the more familiar outcomes, such as "increased job satisfaction" and "satisfactoriness to employer," indicates that they are related conceptually, if not empirically. There is a voluminous literature, for example, on satisfaction and satisfactoriness (success) as outcomes of the career adjustment process (Crites 1969, 1976; Lofquist and Dawis 1968) as well as countless studies of their interrelationship. Admittedly, the results have been less than definitive, the modal $\underline{r}$'s being approximately .14 (Vroom 1964), but this apparent lack of correlation may be due to cross-sectional rather than longitudinal analyses. When the satisfaction and satisfactoriness (success) curves are projected across a developmental context, their relationship is revealed at their asymptotes during the maintenance stage (Crites 1974). Likewise, it is conceivable that the other

outcomes of vocational education might be interrelated if viewed developmentally. Such an hypothesis seems particularly viable, given need for parsimony in a field (vocational education) that has been replete with proposed outcomes but characterized by few studies of their commonalities. If they can be reduced to a more parsimonious set within a salient theoretical framework, their appropriateness and interpretability should be increased.

The Outcomes of Vocational Education: A Proposed Ranking Along The Career Developmental Continuum

To test the hypothesis that the eighteen outcomes identified by the National Center for Research in Vocational Education staff might be meaningfully sequenced along a career developmental continuum from the school through the work years, this writer suggests a study using expert judges (Ph.D. career psychologists and vocational educators) to rank the outcomes as they might be expected to occur, as the individual matures from adolescence through adulthood. Because some of the outcomes appear to occur at the same time, the judges would be instructed that they might consider two or more outcomes of vocational education as being accomplished simultaneously. An example would be the experience of "increased job satisfaction" and positive "satisfactoriness to employer" in midlife, at the beginning of the maintenance stage (Crites, 1974). Judges would rank the eighteen outcomes of vocational education independently. Each judge's rankings would be considered as a separate source of observational data. There would be no attempt to reconcile differences among judges. The intent of the study would be to determine the extent to which there was agreement among experts on the occurrence of the outcomes of vocational education along the career developmental span.

The judges would be given the eighteen outcomes of vocational education, typed on five by eight cards, and would be instructed as follows:

> Each card states an outcome of vocational education that occurs somewhere along the career development continuum. Your task is to rank these from early to late in the individual's school/work life. If two or more outcomes occur at the same time, in your opinion, give them the same rank. In other words, sequence these outcomes along the career developmental continuum as you see them occurring.

The rankings would be collected and cast into the matrix shown in table 1. In the left-hand column are numbers that correspond to the original list of outcomes as delineated by the National Center staff. It would be assumed that this order was essentially random, without any systematic underlying continuum. Across the top of

table 1 are capital letters that designate the various judges, a total of ten in all. This matrix lends itself to statistical analysis by Kendall's "coefficient of concordance" (W), which yields a measure of the extent to which judges agree in their rankings of N stimuli (outcomes of vocational education). The greater the magnitude of W, the greater the agreement among judges. Thus, given a fiducial range of .00 to 1.00 for W, a coefficient in the .70's (or above) would indicate substantial consensus in ranking the outcomes of vocational education along the career developmental continuum.

The hypothesized ordering of the outcomes is given below:

1. Motivation for educational and occupational achievement
2. Increased awareness of need for basic academic skills
3. Acquisition of useful occupational skills
4. Reduced dropout rate
5. Trained workers for labor market needs
6. Placement in a job related to training
7. Upgraded occupational competencies
8. Retrained workers
9. Enhanced job advancement
10. Development of safe work habits and techniques
11. Increased earnings
12. Enhanced leadership capabilities
13. Increased potential for entrepreneurship
14. Increased productivity
15. Improved quality of work
16. Positive attitude toward work
17. Increased job satisfaction
18. Satisfactoriness to employers

It is understood that the judges might assign the same ranks to two or more of the outcomes in ordering them.

The Outcomes of Vocational Education: Interpretations and Implications

It is expected that the results from the judges' rankings of the National Center outcomes of vocational education will indicate that they can be meaningfully and reliably ordered along the continuum of career development. It is apparent from the content of the outcomes that the judges will most likely rank them in accordance with well-recognized stages in career development. As delineated by Super (1957) and others (e.g., Miller and Form 1964), these stages are as follows: (1) exploratory, (2) establishment, (3) maintenance, and (4) decline. The outcomes cut across the school years, beginning with "motivation for educational and occupational achievement", and extend into the work years, with "increased job satisfaction" and "satisfactoriness to employer."

TABLE 1

RANKING MATRIX FOR OUTCOMES OF VOCATIONAL EDUCATION X JUDGES

Outcomes	Judges									
	A	B	C	D	E	F	G	H	I	J
1	A1	B1	.	.	.	.	.	.	.	.
2	A2									
3	.									
4	.									
5	.									
6	.									
7	.									
8	.									
9	.									
10	.									
11	.									
12	.									
13	.									
14	.									
15	.									
16	.									
17	.									
18	.									

Satisfaction and satisfactoriness are generally accepted as the most central and general outcomes of the career adjustment process. Satisfaction is the individual worker's liking/disliking for a job, and satisfactoriness is the employer's evaluation of the worker's performance. Vocational education impacts both these outcomes/criteria of career adjustment.

As noted, however, the accumulated empirical research on the interrelationship of job satisfaction and satisfactoriness (success) indicates that they are only negligibly correlated. In their classic review of the literature on this relationship, Brayfield and Crockett (1955) concluded that, however defined, job satisfaction and success were essentially unrelated. Similarly, from studies conducted by the Survey Research Center at the University of Michigan, Kahn (1960, pp.275, 285-286) observed that "productivity and job satisfaction do not necessarily go together" and that "we should abandon, in our future research, the use of satisfaction or morale indexes as variables intervening between supervisory and organizational characteristics on the one hand, and productivity on the other." Corroborative conclusions have been drawn by Vroom (1964, p. 186) from an additional twenty studies:

1. There is a consistent negative relationship between job satisfaction and the probability of resignation.

2. There is a less consistent negative relationship between job satisfaction and absences.

3. There is some indication of a negative relationship between job satisfaction and accidents.

4. There is no simple relationship between job satisfaction and job performance.

This last conclusion has prompted several attempts to explain why there is little or no empirical relationship between job satisfaction and success. Most of these explanations have posited some "third variable" as a moderator that accounts for the low (nonsignificant) correlation of job satisfaction with success. For example, Brayfield and Crockett (1955) have proposed that the most salient conditions that may affect the interaction of satisfaction and success are those found in the worker's social environment (1) outside the plant, (2) in relations with co-workers on the job, (3) within the union structure, and (4) in the company (organizational) structure. Morse (1953) has suggested that "strength of needs" is a third variable that may affect both job satisfaction and success. She hypothesizes that ". . . if a worker's job is rewarding, and if he [sic] has strong needs, then he will be productive and satisfied. If his job is not rewarding, however, his strong needs will make him productive, but he will be dissatisfied" (Crites 1969, pp. 521-522). Probably the most systematic

explanation of this relationship has been that of Triandis (1959), who has hypothesized a "pressure for high production" factor, which has differential effects upon the correlation between job satisfaction and success across the time dimension (Crites 1969).

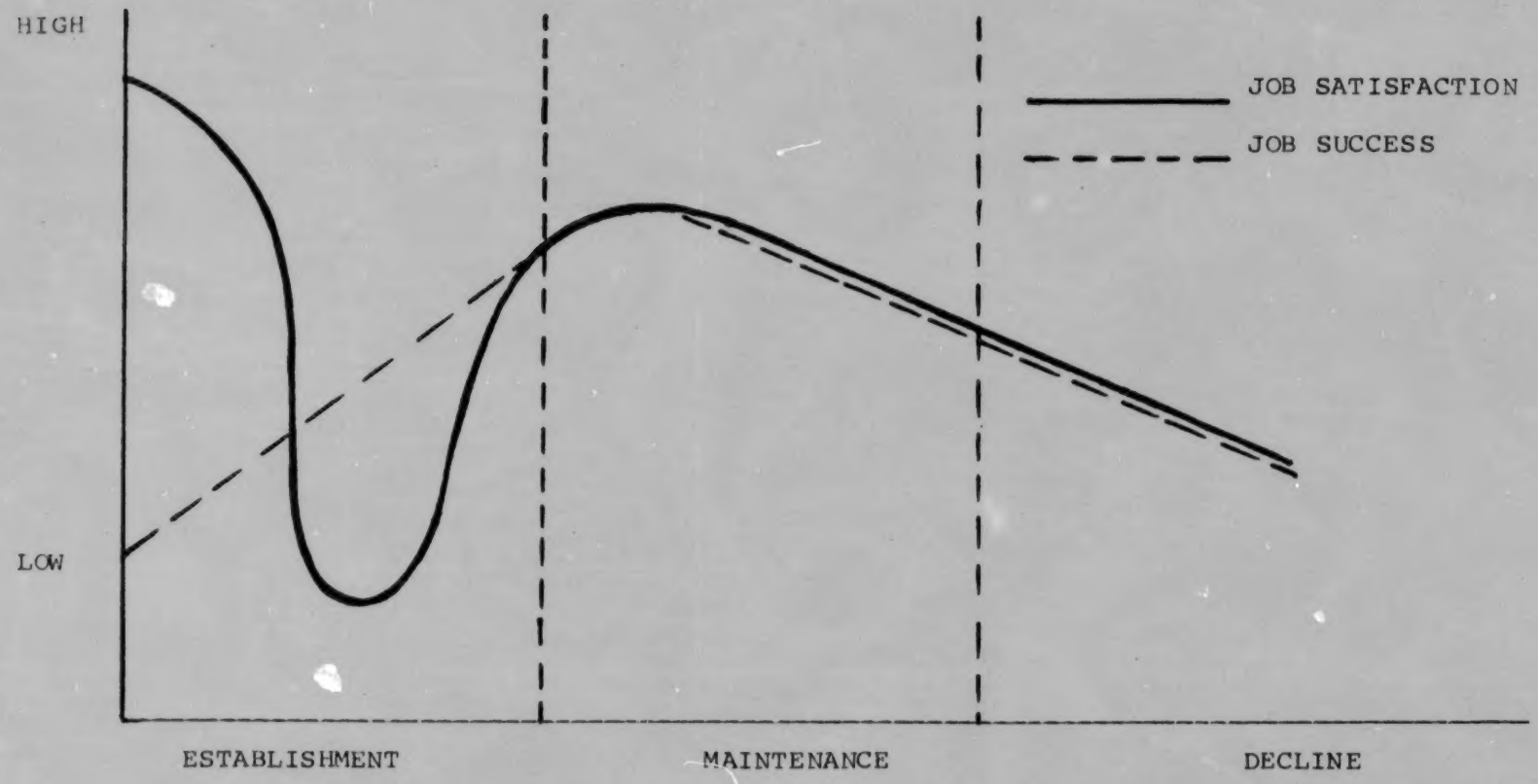
Adult Life Stages and Career Adjustment in Relation to Vocational Education: A Synthesis

None of these "third variable" explanations of the low relationship between job satisfaction and success have posited, however, adult life stages as a factor that may affect these two supposedly complementary components of career adjustment and development. Consider, however, (1) the developmental trends in job satisfaction and job success, and (2) the longitudinal interface between them as the process of career adjustment unfolds. There is considerable documentation that job satisfaction follows a cyclical curve, which starts at a high level (upon occupational entry); dips to its nadir during the middle of the establishment stage, when initial expectations of rapid advancement are delayed or thwarted, and then recovers, although not to the previous high level; to an asymptote at about age forty (Benge and Copwell 1947; Crites 1969). In contrast, job success begins at a low ebb and increases linearly from occupational entry to mid-life when an incipient decline sets in. This occurs at the onset of Super's maintenance stage and continues until retirement. Thus, the developmental trends in job satisfaction and success are different across the adult life stages, with the possible exception of their coincidence during midcareer (approximately age forty).

It is their intersection in midescence that provides a hypothesis to explain the lack of a relationship between job satisfaction and success. As shown in figure 4, it is during the period between thirty-five and forty that the developmental trends in job satisfaction and success have their highest correlation. In contrast, the lowest correlation would be expected to occur at the beginning of the work life, at the outset of the establishment stage, when job satisfaction is high and job success low. Intermediate correlations would obtain between early establishment and midmaintenance. To test this model, it is necessary to collect longitudinal data. The reason that the relationship between job satisfaction and success has not been demonstrated previously, other things being equal (e.g., sample size, measuring instruments), has been that cross sectional analyses have been conducted. When these have been summarized (e.g., Vroom 1964), the range in r has been considerable--Vroom reports coefficients varying from -.31 to .86 --but the median was approximately .14. In other words, collapsing cross sectional data across different age groups during the adult work life stages cancels out the effects of career development and presumably vocational education upon the relationship between job satisfaction and success.

FIGURE 4

ADULT LIFE STAGES AND THE RELATIONSHIP
BETWEEN JOB SATIFACTION AND JOB SUCCESS



Following this functional mode of hypothesis formulation, from the data-language level to the theory-language level and then back again (Marx 1951, 1963), the next step in the model testing process is to design appropriate research from a developmental perspective (Baltes, Reese, and Nesselroade 1977). The gathering of longitudinal data is necessarily time consuming, but some of the newer research designs from life-span developmental psychology shorten this process (e.g., cross-sequential with overlapping cohorts). If empirical evidence confirms the model, there are far- reaching ramifications for both theory and practice. Theoretically, the perplexing problem of why the supposedly complementary outcomes of the career adjustment process--job satisfaction and job success--are not related would be resolved. Projected across the panorama of adult life stages, being viewed longitudinally rather than cross-sectionally, the trends in job satisfaction and success vary from one time frame to another and become highly related only when mid career is reached. Note that this phenomenon occurs at the beginning of the maintenance stage, not at a particular age. A returning woman, for example, who does not reach this stage until fifty-five or sixty would nevertheless follow the same trends in satisfaction and success (on the average), as a woman who enters the maintenance stage at age thirty-five to forty.

The implication for practice is that vocational education would be oriented toward assisting workers with that facet of career developmental adjustment that happens to be variant (or deviant) in a given adult life stage. Those who have just entered the world of work typically experience a high level of job satisfaction but are frustrated by slow advancement. From the viewpoint of the career developmental model, their problems will most likely center upon job success. For those later in the establishment stage, when satisfaction lags behind success, their problem may be how to sustain satisfaction until it "catches up" with success. And, paradoxically, workers at the height of the career developmental adjustment curve, at the beginning of the maintenance stage, may have difficulty with the midcareer crisis of whether to change jobs, because they have attained maximal satisfaction and success, or to continue on with revised aspirations and expectations. Whether for theory or practice, then, adult life stages act as a moderator variable upon the relationship of job satisfaction to job success, as the two principal outcomes of the career developmental adjustment process, impacted by vocational education.

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QUESTIONS AND ANSWERS ON
"A CAREER DEVELOPMENT SCHEMA FOR
VOCATIONAL EDUCATION OUTCOMES: A PSYCHOLOGICAL PERSPECTIVE"

Question: In your definition of vocational education, you have indicated that vocational education is the stimulus. Is it possible that vocational education is the response to some other stimulus?

Crites: Oh no. I see vocational education programs as being comprised of certain content. Sure, people have a response to entering and enrolling in the program, but the program is an intervention.

Audience Comment: I don't have any question about that, but it seems to me that one response is to enroll in vocational education.

Crites: There's no question about that. I'm just saying that once you have that enrollment response, you have the response to the offering of vocational education. Vocational education itself is a stimulus.

Question: You seem to target two outcomes, job satisfaction and satisfactoriness. Why? Is it reasonable to assume that all the other outcomes are under these? If so, how?

Crites: First, I do subsume most of the other outcomes under satisfaction or satisfactoriness, or what I call "success criteria." I propose that the study in my paper should use expert judgment, which would, I think, come closest to substantiating the hypothesis ordering of those other outcomes along the developmental continuum.

Question: If you were to do it without the study, what would you do?

Crites: I wouldn't do it without the study. I'd like to get some facts. I'm both a theorist and empiricist. We can generate some words and ideas all day long, but if there is an empirical

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Note: The questions were generated by buzz groups at the Working Conference. Dr. Crites's responses to the questions were transcribed and edited.

outcome that we can assess, then let's do it. Otherwise, we can disagree, as we have around the table, about what the outcomes are. But I think that if there is some scientific truth criterion that as a psychologist I would impose, it would be to get those opinions independently from judges in the first instance, and see how they line up along the developmental continuum. That's what I was proposing in the paper in the matrix in table 1.

Question: Will you clarify your statement that 75 percent of the people who lose their jobs have unsatisfactory interpersonal skills? In 1982, we have a lot of people who are terminated from employment because the job they held no longer exists due to poor economic conditions. Are those people included in the 75 percent?

Crites: Not the ones who are being released because of riffs in the organization, as we are encountering in Cuyahoga County in northeastern Ohio. Teachers, as an example, are being released because there simply are no school positions available for them. The schools are closing because they do not have sufficient enrollment. Performance appraisals are important in these situations, but I do not know to what extent. I was referring to studies conducted nationwide over the years. The more recent national surveys conducted by independent firms show that 75 percent of those who are released are released principally because they have interpersonal difficulties. The principal problem is nonassertiveness.

Question: Do you differentiate between aggressiveness and assertiveness?

Crites: I generally recognize three classes of behaviors in that continuum: aggressive, assertive, and nonassertive.

Question: Why would being nonassertive cause difficulties? Is it because of withholding anger or because of other feelings?

Crites: I think it involves that, certainly, and also not making your potential or performance apparent to your supervisors. They really don't know what kind of person you are, and what kind of job you are doing. The result is that the individual gets poor performance appraisals.

Question: Why did you single out creativity rather than interpersonal skills, discipline, or assertiveness?

Crites: I didn't single it out, I just added it to the list. I just asked, "Why isn't creativity one of the outcomes?"

Question: Why didn't you include interpersonal skills and assertiveness instead of creativity?

Crites: I wouldn't have added it instead of creativity, but I'm amiss in not including it. I think interpersonal competency is a very important outcome.

Question: Do some of the outcomes you did not consider relate to your ideas on creativity, assertiveness, and getting along with people?

Crites: One could probably relate them, and what I was saying was that if we had the opportunity, we should get measures of each of these and interrelate them. Then we would know if they were related or not. We need to test the hypothesis.

Question: What was your working definition of vocational education as you considered the outcomes?

Crites: I will risk using words that have had pejorative connotations associated with them, such as career education. That is the background I come from, for me that includes not only what we think of as vocational skill training, but also the second track of career development, career guidance, career counseling, that sort of thing. I think that the two of them are intimately related as far as the outcomes of vocational education are concerned. I would include both the career development continuum and the educational continuum. I think the two are complementary.

AN EVALUATION OF OUTCOMES USED TO ASSESS THE EFFICACY OF VOCATIONAL EDUCATION A SOCIOLOGICAL PERSPECTIVE

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Introduction

Vocational education has been charged to demonstrate in systematic ways its efficacy in preparing youth, adults, and disadvantaged for gainful employment. The seriousness of the charge has been linked to the increasing forcefulness with which congressional committees have asked for evidence that federal monies directed to vocational education have in fact contributed to the intent of federal policies. One of the tasks involved in fulfilling the charge is the selection of outcomes that are appropriate and reasonable, given the limited nature and intent of vocational instruction. Another task is to gain majority support, failing consensus, among vocational educators and their clients (i.e., students, parents, and at the federal level, members of congress and committees of congress.

The purpose of the inquiry reported here is to contribute to the base of information used in selecting appropriate and reasonable outcomes. It may also contribute to gaining support for a particular selection of outcomes if the evidence presented, the logical inferences drawn, and the recommendations are persuasive enough.

This inquiry is restricted to the field of sociology as the source of theories, concepts, data, and research findings brought to bear on evaluating a designated list of eighteen outcomes currently being used to assess the efficacy of vocational instruction.

The report is organized into two major sections. The first describes the perspective employed in terms of premises, the boundaries of the inquiry, the search procedures, the limitations, and the findings. The second section examines each of eighteen outcomes in light of specific findings pertinent to it and presents a recommendation for its continued use, with or without modifications, or its discontinuance.

Premises

The basic premise of the analysis is that human behavior results from a complex of internal (to the individual) and external

(in the social and physical environment) forces interacting at a particular point in time and over time. Further, group activities lead to the development of social forces that transcend each individual and affect each person individually and in interactions with other people. Illustrative of this are such phenomena as group morale and cohesiveness. The multiplicity of variables, only some of which are known, and the dynamism of the interaction of the individual with others in a given situation preclude identification of simple cause-and-effect relationships. When one adds to the complexity of the subject under investigation, the limitations of the measurement of social and personal variables, the enormity of the task in specifying causes and effects, inputs and outputs, is self-evident.

In addition to the specification of premises about group and individual behavior, it is appropriate to indicate those premises that pertain to evaluation. Evaluation as used here is a process of judging the appropriateness and reasonableness of that which is being examined on the basis of an explicit standard. Formal evaluation, which is being undertaken in this effort, differs from the evaluation that most of us engage in many times each day as we go about the process of living. The difference resides in the systematic way in which various types of evidence are sought, weighed, and brought to bear on the final judgments.

What kind of standards can be formulated for use in an effort such as this? Given the premise that human behavior has multiple forces causing a specific outcome, one standard is this: The greater the amount of variance explained in an outcome by vocational education, the greater the validity of using that outcome. Such a standard, however, appears highly vulnerable to the fallacy of circularity. Yet is that so, if we posit that in our brave new world, all things are known and systematic investigations have demonstrated that quality vocational education programs consistently account for 10 percent of the variance in job satisfaction of workers, as contrasted to 5 percent of the variance in enhanced leadership capabilities? Should we then consider job satisfaction a more valid indicator of effective programs, or should we use as a standard for evaluating programs, that each produce 10 percent of the variance in job satisfaction and 5 percent of the variance in leadership capability? But now we have shifted from the adequacy of an outcome to the adequacy of programs. Yet why are we concerned about valid outcomes if not to use them for ascertaining the effectiveness of programs and justifying their contribution to their students and the society that supports vocational education? All of which leads to the questions, "What are these outcomes to be used for?" and "What is the import of their use for the standards to be applied in evaluating each outcome?"

Since we do not live in a brave new world where all things are known, the illustrations provided above are completely

fictitious. Further, research evidence is quite uneven in terms of outcomes investigated and the adequacy of the research design, measurement, and sampling. Thus the closest we can get to the proportion of variance accounted for will be in terms of "likely variance accounted for" based upon logical inference from research findings on related problems and on expert opinion regarding relationships between selected related variables and related outcomes. A shift from the ideal to the possible, where there is such a wide gap between the two, underscores the fact that evaluation is making a judgment on a cogent rationale with less than fully adequate evidence. Given this, what are some of the assumptions basic to a cogent rationale? Here are three that surface rather frequently in this analysis:

1. The more the explicit objectives and activities of the intervention are directly related to a particular outcome, the greater the likelihood of the intervention's contributing significantly to the outcome. For example, if the intent of the explicit objective is to prepare an individual to be able to repair brake systems on a number of different models of cars, and if the activities provided include tools, supplies, repair manuals for different vehicles, and supervised experience in repairing brake systems of many vehicles, such an intervention has a certain face validity for contributing significantly to the outcome of "attained occupational competency as a brake repairperson."

2. The more powerful the intervention in comparison with other known factors that could possibly contribute to the outcome, the greater the likelihood that the intervention will contribute significantly to the outcome. For example, a young person works with an adult who is a self-taught mechanic to repair the brakes on the family cars. They do this about every two years. The young person is sporadically involved in similar efforts with friends. Once enrolled in a program to learn this competency, the individual is provided systematic instruction that includes attention to similarities and differences between vehicles, variations in types of repair called for, learning of the appropriate labels of parts and processes, and practice in these processes until the requisite skill is demonstrated. Thus "powerful" as used here includes the duration and intensity of the intervention, the scope and depth of treatment, and the intensity and involvement of the individual in the experience.

3. The shorter the lapse of time between the intervention and the measurement for the expected outcome, the greater the likelihood that the intervention will make a significant contribution to the outcome. To continue the illustration, outcomes measured two to three years

after completion of the instruction may have been greatly affected by the work experience during the intervening period.

4. It is assumed that these three conditions are interactive. When all three conditions prevail, a stronger case can be made for the intervention's being significantly related to an outcome than when only one or two prevail.

In sum, the premise of this inquiry is that human behavior, at the level of individuals and at the level of collectives, has multiple causes. Further, to examine the validity of outcome measures for vocational education within the context of fundamental truths, theories, concepts, and major findings of sociology is, in effect, an evaluation. Evaluation is a process of judging the appropriateness, then, of the outcomes identified. Judging as a rational process, requires some explicit standards. The standards used will be the evidence related to the multiple causes for specific outcomes in addition to vocational education --the crudely estimated degree of variance that can be reasonably attributed to vocational education, based upon the assumptions of directness of association, the power of the intervention, and the proximity in time of measured outcome to completion of the intervention. The eighteen outcomes to be evaluated by this procedure are: increased awareness of need for basic academic skills, satisfactoriness to employers, provision of trained workers for the labor market, motivation for educational and occupational achievement, placement in job related to training, acquisition of useful occupational skills, positive attitude towards work, increased productivity, development of safe work habits and techniques, increased earnings, enhanced leadership capabilities, upgraded occupational competencies, increased potential for entrepreneurship, enhanced job advancement, increased job satisfaction, improved quality of work, retrained workers, reduced dropout rate.

Boundaries of Inquiry

The discipline of sociology encompasses the totality of society from a particular perspective. Bierstedt defines sociology as "an inquiry into the structure of society, an endeavor to achieve an orderly arrangement of the components of that structure, to delineate the relationships of these components to one another, and to discover, if possible, the general processes of social change" (Bierstedt 1974, p. 30). Given the magnitude of the field, it comes as no surprise that sociology has been subdivided into many areas to facilitate more intensive examination. The labels used for these subdivisions are as varied as the points on the field through which boundaries have

been drawn and redrawn, intersecting and overlapping. The Editorial Committee of the Annual Review of Sociology selected these major headings: differentiation and stratification, political sociology, social processes, institutions, the individual and society, formal organizations, urban sociology, demography, policy, theory and methods (Inkeles, Coleman, and Smelser 1975, pp. v, viii). Catalogues for university departmental course offerings provide alternative breakdowns, which may include sociology of education; family; criminology; industrial sociology; urban sociology; sociology of rural areas; changing social institutions; sociological theory: European; sociological theory: American; sociological research methods, and so on. Given the breadth of the field, it was necessary, in the interest of feasibility, to limit the subdivisions within the field, which were searched for knowledge pertinent to evaluating outcomes for vocational education. After studying the outcomes, the subdivisions considered most likely to be pertinent were: sociology of education; socialization; social stratification; sociology of work and work organizations, sometimes referred to as industrial sociology; sociology of labor markets; social psychology of work groups; and the sociology of volunteer associations. These then are the areas within the field of sociology upon which this inquiry is based.

Procedures

Search Process

Prior to initiating the search, the question of what constituted evidence that could be weighed, legitimately, in evaluating outcomes arose. Specifically, should the results from a single study be considered evidence? How critical was it to search out studies of the same subject that might have arrived at different findings? Given the breadth of the terrain and the thirty to forty years during which research and theory building pertinent to this task had been completed, what feasibility constraints needed to be considered? After the questions were posed, several guidelines for the search became clearer. I concluded that reviews and syntheses of theory and research constituted the best sources for current sociological knowledge. I say "current" because knowledge is open ended and changing, contingent upon the results of further inquiry. From my work in sociology, I noted that textbooks by recognized authorities in the subfields contained the theories judged to be most supportive of productive research and most plausible given the cumulative results of a number of sometimes disparate studies, after the methodological strengths and weaknesses of each had been weighed. In brief, my search then was to identify sources of sociological knowledge, defined in much the same terms used by Weiss (1982, p. 121). "Knowledge claims are certified by the agreement of experts. Knowledge is that which other social scientists consensually accept as knowledge. . . the findings of a single study,

however carefully done, rarely qualify as knowledge. Information, yes. . . . Even a series of studies on the same topic--even a series that converges on the same findings--may appropriately be kept on hold for a time."

Weiss proceeds to note the contributions the social sciences can make to decision makers, four of which are relevant to this discussion, namely: "statistical data and data series, indicative of conditions in the social world; findings and generalizations from research, evaluation and policy analysis; the conceptual apparatus of the social sciences, such as reference groups and social class; and last, middle-range generalizations such as cause and effect linkages postulated for example, family disorganization is a cause of children's poor school performance" (1982, p. 22).

Another criterion that I applied was time, and in this area I sought the most current reviews and syntheses available. Where a study continued to be referred to as a landmark type of study ten to fifteen years after its publication, I sometimes went to the original study for the details provided. Given the number of sources available and the occasional duplication, I considered the agreement between different reviewers as providing further evidence of the generally accepted validity of the conceptual apparatus, data, and/or generalizations.

The actual search strategy included consultating general references to the social sciences, locating handbooks in sociology, checking all books in print under the headings of sociology, sociology of education, and industrial sociology. From these materials, I located additional references in bibliographies, which I examined and, where applicable, used.

Limitations

Given the breadth of the field and the time constraints, it is possible that some sources pertinent to the inquiry did not surface. Hence, some documentation provided may seem less appropriate to experts in these subdivisions of sociology than other sources with which they are familiar. As will become apparent in the latter part of this paper, in many instances it has been necessary to draw inferences from more abstract generalizations to specific outcomes. This is a process of making judgments which are indeed fallible. The test will be in the persuasiveness of the argument for each reader.

Sociological Conceptualizations and Research Findings

The sequence of presentation of sociological conceptualizations and research findings proceeds from the largest collectivity, through various sized aggregates and groups, to the

individual, with attention to interaction between these at each point. Thus the concepts and findings relevant to social stratification and mobility are discussed first; the sociology of labor markets, second; the sociology of work and work organizations, third; and socialization and social factors in motivation, last.

Social Stratification and Mobility

Embedded within some of the most familiar descriptions of the United States is the belief in the opportunity to achieve a social status and its commensurate rewards consistent with an individual's talents, aptitudes, and willingness to work--America is the land of opportunity, where one can go from rags to riches. Sociologists have been engaged in studying social differentiation, social stratification, and the fluidity and/or rigidity of these structures from a cross-cultural perspective. Attention has focused also upon the processes by which mobility of varying degrees is attained, or, the converse, impeded or thwarted. One process generally accepted as significantly related to social mobility is education, particularly the duration, but also the curriculum. This is the nexus that makes the concepts and findings relative to social stratification and mobility pertinent to the purpose of this analysis. Some of the outcomes claimed for vocational education are increased earnings, positive attitudes toward work, job placement, enhanced job advancement, and increased job satisfaction. These are specific conditions and attributes related to conditions that have import for mobility, and to attributes that vary throughout the various strata, as well as within a stratum.

Blau and Duncan (1967, p. 1) completed one of the most significant studies of social stratification and mobility. The significance resides in the theoretical framework employed and a methodology that included data on a number of variables from a representative sample of over 20,000 American men between the ages of twenty and sixty-four. After discussing the concepts of prestige status and economic class, the authors note that "occupational position is not identical either with economic class or prestige status, but it is closely connected with both, particularly the former. . . . Occupational structure in modern industrial society not only constitutes an important foundation for the main dimension of social stratification but also serves as the connecting link between different institutions and spheres of social life, and therein lies its significance" (Blau and Duncan 1967, pp. 6-7). Occupational status was quantified as a score in this study and thus facilitated the use of sophisticated statistical techniques for more refined analysis of the data. The central concern in the study was to ascertain the influence exerted on different variables by occupational achievement and the way the variable "modifies the effect of social origins on

these achievements" (p.9). Some of the findings of the study pertain to the flow of the labor force among occupational groups and lead to inferences regarding (1) the underlying factors that govern these movements and reflect the social distances between occupations; (2) the processes of occupational achievement and mobility in terms of the way the status individuals achieve is affected by the status ascribed to them earlier in life by social origin, ethnic status, region of birth, and so on; and (3) the inequalities of opportunities engendered by race and nativity (pp. 19-20).

Blau and Duncan traced the interdependence among four determinants of occupational achievement: father's education, father's occupation, respondent's education, and first job of respondent. The zero order correlations with occupational status reported were .32 for father's education, .40 for father's occupation, .60 for respondent's education, and .54 for respondent's first job. Since these variables are interrelated, the influences are not cumulative. Blau and Duncan conclude that social origin, education, and career beginning (first job) account for somewhat less than half the variance in occupational achievement. They also point out that "as a man gets older the significance of his past career for his subsequent career becomes increasingly pronounced, and the influences of his social origin and his education as well as those other factors not directly measured become less and less important. Making inferences about career stages from comparisons of age cohorts, we have estimated that the influence of his past career on a man's occupational status increases from a .30 path coefficient around age thirty to .89 when he is about sixty, and the net influence of social origins decreases from .18 to nil, that of education decreases from .48 to .06, and that of all other factors decreases from .82 to .40" (p. 403).

Findings relative to low socioeconomic status populations and racial and ethnic minorities are pertinent to this analysis. Blau and Duncan (1967, p. 404) conclude that the results of their analysis do not reveal a vicious circle through which poverty is perpetuated for the majority of individuals in this society. They note that the effects of father's low education and low occupational status on the child's career is in large part mediated by education, though not entirely. Given such minimum cumulation and the fact that most differences in occupational achievements are not the result of differences in social origins, there seems little support for the belief in a vicious circle.

Relative to blacks and sons of immigrants, background handicaps are cumulative. They report the following:

1. Disproportionate numbers of Negroes live in the South, where occupational opportunities are not as good as in the North.

2. Blacks have lower social origins and receive less education.

3. Even with comparable amounts of education, Negroes enter the job market on lower levels.

4. When social origins, education, and career beginnings are statistically controlled for Negroes and whites, the chances of occupational achievement of Blacks are still considerably lower.

5. Within the same occupation, the income of Blacks is lower than that of whites.

They conclude, "Since acquiring an education is not very profitable for Negroes they are inclined to drop out of school relatively early. The consequent low level of education of most Negroes reinforces the stereotype of the uneducated Negro that helps to justify occupational discrimination against the entire group; thus depressing the returns Negroes get for educational investments they do make, which again lessens their incentives to make such investments" (pp. 404-406).

Keeping in mind that Blau and Duncan studied a representative sample of male workers in 1962, with the results appearing in 1967, it is essential to ask whether changes have not occurred, given the impetus for eliminating inequalities in education and providing equal employment opportunities and equal pay for equal work during the mid-1960s and 1970s. Miller and Form (1980, pp. 633-34) report that occupational changes for blacks reported for the period from 1960 to 1970 showed that blacks are moving into professional, managerial, and other high-paying jobs at a faster rate than whites and are leaving lower paying jobs more rapidly. They report that the educational gap between whites and blacks that had existed for so long was closing during the decade. By 1970 the education of young black adults was within one-half year of education of young white adults. Since these improvements have been made predominantly by young black workers, ages twenty-five to thirty-four, many in the older age grades thirty-five to fifty-four and fifty-five to sixty-four are still in the lowest paid occupations. Even in the twenty-five to thirty-four age category, the young black workers are overrepresented, as a percent of all young workers, in the lower paid levels and underrepresented in the higher paid level (pp. 635-636). Miller and Form (1980, p. 626) describe the operation of particularistic norms in the labor market. Citing six studies of selective hiring and promotion practices in different localities, they conclude that "in general social norms are more easily applied in smaller isolated towns which have one or few industries. Where no labor union exist; where ethnic groups are strong and segregated, and where industrialism is just beginning, the social characteristics of employees count most heavily in shaping

their economic destinies" (p. 267). One of my concerns is that the studies Miller and Form cite were completed in the 1930s and 1940s. Yet general information related to the gap between rhetoric about and practices for equal opportunity leads me to conclude, apparently as did Miller and Form, that although some gains have been made in applying more universalistic criteria in hiring and promotion, it is naive to believe that discriminatory practices have been eliminated. In brief, Miller and Form's analysis lends credence to the continued validity of much of Blau and Duncan's conclusions regarding blacks. It is important to note that Blau and Duncan indicate that there is some reason to question whether an equal number of years of schooling for blacks and whites leads to equivalency in educational attainment, given differences in the quality of education provided. The answer to this question may become even more important as the educational gap between blacks and whites decreases, if disparities in returns to education persist between these groups.

Relative to sons of immigrants, Blau and Duncan (1967, pp. 406-407) note that "these individuals have lower social origins and less education than the majority group of northern whites with native parents, yet their occupational achievements are on the average as high as those of the majority group, not only if initial differences are controlled but also without controls" (406-407). Blau and Duncan continue that although these data would appear to indicate that white minorities do not experience discrimination, a more detailed analysis supports the interpretation that the high degree of success of some second generation immigrants, of northern and western European descent, neutralized the disadvantages experienced by those predominately from southern and eastern Europe. They point out that, given the impediments to achievement, those individuals who overcome the impediments are undoubtedly a select group with high potential for continued achievement.

On one of the questions central to this major study, the authors conclude that the rates of upward mobility are still high in the United States and are a result of the structural features of contemporary industrial society (Blau and Duncan 1967, p. 427).

Bielby (1981, p. 3) reviews the results of fifteen years of research on status attainment, a concept that includes educational and occupational attainment. He examines the associations between social origins and education, including the social psychological and allocative mechanisms. More recent research on the representations of labor market structures and processes are also reviewed. Bibliographic sources for this review total seventy-nine. Sources used include the Blau and Duncan study described above, further work by Duncan, a number of reports by Featherman, Hauser, and Sewell from a longitudinal study of status attainment of Wisconsin youth; and the works of C.S. Jencks and coauthors on Inequality (1972) and Who Gets Ahead (1979).

Relevant findings (Bielby 1981, pp. 7-14) from this stream of research are as follows:

1. Schooling transmits socioeconomic advantages and disadvantages across generations in the United States. Schooling is not independent of social origins.

2. Schooling is not completely determined by social origins hence schooling provides channels for social mobility.

3. There is a lack of consensus on whether the transmission of socioeconomic status between generations is a more important function of schooling than providing a channel for mobility.

4. The amount of variance in schooling attributable to measured social origins (parental education, income, race, ethnicity, family size, birth cohort, etc.) found in studies of Blau and Duncan (1967), Duncan (1968), Duncan et al. (1972), and Jencks et al. (1973) was slightly over one-fourth.

5. When social origin variables are expanded, the variance in schooling attributable to circumstances of birth ranges from 37 percent to 42 percent.

6. When the covariation between the educational attainment of siblings is used as an indicator of the unmeasured "family" factor (quality of parental care, intellectual environment, etc.), at least one-half and perhaps as much as two-thirds of the variance in years of schooling is attributable to social origins, where these variables include all background factors shared by siblings.

Relative to the intervening mechanisms leading to the relationship between years of schooling and social origins, Bielby (1981) reports the following finding from the most important published works:

7. No one mechanism is largely responsible for the link between schooling and social origins. Measured ability appears to mediate no more than about one-third of the total effects of status of origin on educational attainment.

8. Less than 15 percent of the variance in measured ability is attributable to socioeconomic origins.

9. Secondary school teachers respond strongly to measured academic abilities in their evaluations and encouragements and do not appear to assign grades and encourage college as a direct response to social origins.

10. "The link between social origins and schooling appears due to differences between families in the degree to which they provide a social environment that emphasizes schooling and inequalities among families in the resources that affect a child's performance on standardized tests" (Bielby, 1981, p. 11).

Relative to status attainment and the labor market, Bielby (1981, p. 14) states that the cumulative research findings "are straightforward: ability has a substantial influence on schooling, which has a substantial influence on occupational status which in turn substantially affects earnings. Furthermore, there are small to modest education-specific occupational returns to ability as there are occupation-specific income returns to education and ability." How the inequality and covariation among schooling, occupation, and earnings comes about is not explained in the status attainment literature. In another review of research pertinent to a study of social mobility within a number of societies, Matras corroborates Bielby's synthesis when he notes that the combined influence of all the variables--family background, respondent's own educational achievement, and respondent's occupational status accounted for only a small part of the total variation in income. Citing replications of the initial research in this area by Duncan (1968), Featherman and Duncan (1972) report that all studies have obtained similar results (Matras 1980, pp. 418-19).

An individual's position within the occupational structure has implications for job satisfaction. Campbell, Converse, and Rodgers (1976, pp. 299-302) in a study of the quality of American life using data representative of the national population eighteen years and older, asked about job satisfaction. Their findings were as follows: older workers were more satisfied than younger workers; there was practically no difference in average job satisfaction of men and women; blacks were somewhat less satisfied with their jobs than whites; more educated individuals were less satisfied with their jobs than people with less education; and the personal variables enumerated accounted for only 5 percent of the variance in job satisfaction. An analysis of hours worked per week, time required to travel from home to work, earnings during the previous year, and type of occupation, taken together, accounted for 1 percent of the variance in job satisfaction (p. 304). Six perceptions of work accounted for close to one-half of the variance in job satisfaction. The most powerful of the six was whether or not the work was perceived to

be interesting; second, was the perceived opportunity to use one's skills; third was the perception of pay; fourth, perceived job security; the last two pertained to perceptions that the job provided solid creature comforts and presented no problems to the worker (p. 299). Shepard (1977, p. 8), in a review of research on technology, alienation, and job satisfaction, reports that a "long tradition of research has found job satisfaction increased with skill level and degree of worker control over work operations." Katz and Kahn (1978, p. 364), citing eight different studies conducted from as early as 1934 to as recently as 1960, conclude that "the bulk of the research on satisfaction with job demonstrates that more varied, complex, and challenging tasks are higher in worker gratification than less skilled, routine jobs. Such findings have been accumulating for almost fifty years and the basic pattern is beyond question." Of particular import to this inquiry is the finding from a study cited by Katz and Kahn (1978, p. 364) that the greatest amount of job satisfaction occurs among professionals. Intermediate in gratification are those in clerical sales, manually skilled, and semiskilled. No differences were found in satisfaction among these intermediate groups. Unskilled workers expressed the least amount of satisfaction. There is further evidence that job satisfaction of blue-collar workers is influenced by their perceived opportunity to use the skills they have learned for the job and the chance to do the kinds of things they do best. In one study, approximately one-third of the variance in job satisfaction was accounted for by opportunities for self-expression measured by nine questions, including some relevant to the areas indicated above. Every national study--and a series of such studies have been conducted over the past fifteen years--finds higher job satisfaction among higher occupational groups the country over (Katz and Kahn 1978, pp. 368-369). The range of overall satisfaction according to one study cited is from -42 to +27, with machine operatives and laborers at the bottom of that range and professionals and managers at the top (Katz and Kahn 1978, p. 589). Miller and Form (1980, p. 133) point out that poor working conditions and bad company policies and administration will lead to job dissatisfaction, although good conditions will not necessarily lead to positive job attitudes. These factors, sometimes labeled hygiene factors, such as recognition, achievement, advancement, responsibility, and the work itself may influence job satisfaction.

In a review of research on organizational performance, Kanter and Brinkerhoff (1981, p. 333) state that there is a lack of evidence that job satisfaction bears any consistent or positive relationship to productivity.

Although Miller and Form (1980, p. 155) report what appears to be evidence of changes in the degree of job satisfaction of workers, it is unclear whether it is social change or individual maturational change that is being reported. Levels of job

satisfaction reported have been high in past surveys. For example, Levitan and Johnston (1973, p. 71) report percentages of respondents in specific occupations indicating they were very satisfied or satisfied, as follows: professional, technicians, 83; managers and proprietors, 80; clerical workers, 61; sales workers, 68; skilled workers, 76; semiskilled, 75; unskilled, 65; farmers, 80. Miller and Form (1980, p. 155) report a study in 1972 showing far more dissatisfaction among younger and better educated workers. Blacks under age thirty were by far the most dissatisfied subgroup, whereas blacks over age forty-four were among the most satisfied. Yet, Veroff and Feld (1970, pp. 216-217) discuss evidence derived in 1957 that supports the view that as individuals age, their accommodation to work and the assessment of it shift from one of less satisfaction to more satisfaction. The nature of problems related to work varies, with the younger workers being unsettled in their work choice, whereas older workers speak of such things as failures, health, and extrinsic aspects of the job. Thus from 1957 to Campbell, Converse, and Rodgers's (1976) analysis, the link between job satisfaction and increasing age is documented. Although societal change has occurred and may have import for levels of job satisfaction for all ages, it appears that developmental and maturational changes in individuals may produce a type of leveling effect. In sum, job satisfaction levels are influenced by a number of variables, and there is evidence of interaction between satisfaction with work and satisfaction in other areas of life. Campbell, Converse, and Rodgers (1976, p. 317), in studying the quality of American life, state that "specifically those who express high levels of satisfaction with their jobs are more likely than those who are less satisfied to express high levels of satisfaction with other life domains. The correlations are highest for the financial domains, non-working activities, family life, and friendships, but are positive for all of the domains included in this study. . . it would be highly conjectural to conclude from them that in a simple causal sequence job satisfaction produces negative consequences on other domains of life. An equally plausible set of explanations is that other factors influence both job satisfaction and the life quality indicators with which it is correlated."

Just as an individual's position in the occupational structure has implications for job satisfaction, so too does one's position in the stratification system--of which occupation is a fairly close indicator--influence patterns of social participation in community organizational activities. Wright and Hyman (1958) report the results of a study two national probability samples of the adult noninstitutionalized population of the United States over twenty-one years of age relative to memberships in voluntary associations. Wright and Hyman found that only a minority (21 percent) of American families belonged to more than one voluntary organization. Forty-seven percent of the

families reported that no family members belonged to an organization; 31 percent reported memberships in one organization. In another sample, 64 percent of the adults reported no organizational memberships; 20 percent, one membership; 16 percent, two or more. Relative to occupational levels, 68 to 87 percent of blue-collar workers belonged to no organizations (not counting union membership); as constrasted to 59 percent of the white collar-workers and 47 percent of business persons and professionals. Using other indices of social and economic status, family income, education of respondent, occupation of head of household, and home ownership, they conclude that an appreciably higher percentage of persons in higher status positions belong to voluntary associations than do persons of lower status. In a replication, Hyman and Wright (1971) report that 1962 data permit the delineation of trends relative to membership in voluntary associations. The finding from 1950 data that the majority of Americans are not members of voluntary associations is confirmed by data from the 1960s. The youngest adults, age twenty-one to twenty-seven are about equally uninvolved whatever the generation, with 75 percent in 1962 and 77 percent in 1955 reporting that they were not members of any organizations. There was a small but noteworthy increase in memberships in voluntary associations between the mid-1950s and the early 1960s--a change that was distributed all along the continuum of socioeconomic status. Membership is directly related to current socioeconomic position, confirming the finding from data in the 1950s. Relative to occupational status and membership, they report the following.

Among skilled, semiskilled, and unskilled individuals with incomes above $7,000 in 1962, 59 percent belonged to no organizations; 24 percent belonged to one; 17 percent, to two or more. For these same categories of workers with incomes below $7,000, 72 percent belonged to no organizations; 19 percent, to one; and 9 percent to two or more. This contrasts with workers categorized as professional and business, with incomes above $7,000, where 47 percent reported no memberships; 17 percent reported one membership; and 36 percent reported two or more memberships. Workers with incomes below $7,000 in this category reported 53 percent as having no memberships; 25 percent as having one membership; and 22 percent as having two or more memberships.

The trend toward increased memberships applies to both blacks and whites but is somewhat more evident among blacks, thus relucing to a small degree previous differences.

Finally, the respondent's current economic situation appeared to have more effect upon memberships than did the family of origin.

Foner (1979, p. 227) reports that "one of the well documented findings on class is that lower class individuals are less likely than those in higher strata to participate in the social, political, and cultural institutions of the society. Publications in the 1970s add to the accumulated evidence. People in the lower strata as compared to those in the higher strata (measured either by occupation, education, or income) have fewer memberships in voluntary associations." Relative to sex differences, Foner notes that women are somewhat less likely to have voluntary association memberships than men, but they appear to spend as much time on organizational activity as men: Married, employed women are an exception, in that they spend less time in organizational activity than homemakers, married men, or single men and women.

Smith (1975, pp. 247-260) reviews more than 150 studies on individual, voluntary association participation, formal voluntary association participation, and formal voluntary group membership. He reports that only 62 percent of U.S. adults indicate having such memberships, and that only 40 percent of U.S. adults indicate activity in voluntary associations. Males have higher overall membership rates than females, but differences vanish when activity levels are taken into account. Persons between thirty-five and fifty-five years of age have higher voluntary association participation rates than younger or older persons. Educated persons tend to have higher overall rates, not only in the U.S. but in all countries studied, as do those of higher occupational status and income. Smith (1975) notes that an important theoretical issue is to show the relationships between specific social background and roles and particular attitudes, personality, and situational variables that are conducive to individual participation in voluntary associations. His own research tends to confirm that apparently powerful social background and role characteristics lose much or most of their direct explanatory power when intervening attitude, personality, and situational variables are controlled statistically. One study has demonstrated that parental voluntary association participation has an independent effect on respondents' voluntary association participation.

Research on relationships between personality variables related to participation in voluntary associations lends some support to the view that a variety of general and specific attitudes characterizes the "ideal participant." These variables include social conformity, efficacy (internal control), self confidence, assertiveness, sociability, affiliation needs, personal adjustment, and so on. One study cited by Smith (1975) found that in university freshmen more positive attitudes toward voluntary organizations, a higher sense of political efficacy, a greater sense of general citizen responsibility was significantly associated with participation in nonuniversity-based formal voluntary groups.

In sum, the research results reported here and the theoretical questions addressed in these studies indicate that determinants of social participation are multiple and that interactions among variables are very highly probable. If explaining social participation is difficult, given present knowledge, there is every reason to believe that leadership activities in these organizations and associations are similarly determined by multiple forces and conditions.

Sociology of Labor Markets

Kalleberg and Sorenson (1979, pp. 351-379) provide a review and synthesis of theory and research on the sociology of labor markets, using over 150 sources. They point out that this area of specialization within sociology is a point of convergence for much of the literature on social stratification, sociology of occupations, industrial sociology and sociology of organizations. Study in this area is germane to the purpose of this analysis, inasmuch as it permits an understanding of the way macrosocietal forces impinge on the microrelations of employers and employees in determining various forms of inequality. Labor markets are the institutions and practices that govern the purchase, sale, and pricing of labor services. Included within these are the means for distributing workers among jobs; job mobility; the acquisition of skills; training; the distribution of wages; and other rewards for working.

Central to inquiry in this area have been different conceptions of labor markets and labor market outcomes. Labor markets have been conceptualized as segmented, as primary and secondary, as external and internal to organizations, as closed and open. These are overlapping rather than mutually exclusive categories, usually defined in operational terms consistent with the research strategy employed. Labor market outcomes can be examined in three areas, the distribution of job rewards, mobility and careers, and labor market segmentation of population groups. Wright and Perrone (1977, pp. 132-55), studying income inequality within a theoretical framework of Marxist class categories, note the preference to hold constant all factors in addition to education that have any significant impact on income. Such factors include occupational status, on-the-job training, seniority, work experience, industrial sector, geographic location, migration, to mention only some. The research was designed to examine the variance in income explained by selected variables and combinations of variables. Their expectation was that class position would have at least as much effect on an individual's income as would the individual's occupational status. Further, they expected that class position would have a strong influence on the extent to which education influenced income. These expectations and related questions pertaining to relationships for women and blacks within and between class positions were tested

on data collected in 1969 from a national random sample of 1,533 adults, sixteen years and older, and data collected in 1973 from a national random sample of 1,496 adults. The following results are germane to this inquiry:

1. Education and age account for just over 15 percent of the variance in income.

2. Occupational status explains an additional 4.1 percent.

3. Class position adds 9.4 percent.

In total, the combinationa of these variables accounts for 27 percent of the variance in income for white males.

Relative to returns from education, they conclude that (1) returns to each unit of education within the managerial category are greater than within the working class category; (2) even when education, occupational status, age, and job tenure are controlled for, employers have greater income than either managers or workers; (3) the returns per unit of education for small employers are much greater than for workers and managers; (4) within class categories, the income gap between races tends to be much smaller than between the sexes.

Stolzenberg (1975, pp. 645-665), drawing data from the 1960 and 1970 U.S. Census and from publications of the U.S. Bureau of Labor Statistics, sought information on the fragmentation of labor markets along occupational lines by testing the effects varying across occupations. Calculating regression equations estimated over the entire civilian employed male labor force, as well as within each of the major occupational groups, he found that industry wage effects are sizable and that industrial wage effects differ substantially across occupations. Relative to this latter finding, industry wage effects explained at most only 64 percent of the variance in the effects computed for the clerical, kindred, and sales workers, and as little as 28 percent for laborers and service workers.

Stolzenberg (1975) discusses the convex age-earnings profiles and provides some support for the theory that the relationship between a worker's age and earnings depends upon the worker's occupation, and that this relationship is in itself at least partially explainable by the nature of the tasks constituting the occupation. Comparing the age-earning profiles of a heavily unionized occupation (79 percent), locomotive engineer and fireman, to a less heavily unionized occupation (40 percent) of truck drivers and deliverymen, he demonstrated that age-median earnings profiles for the heavily unionized workers did not decline as sharply after the period of peak earnings as did those of the less heavily unionized truck drivers and deliverymen. These data supported the view that union bargaining becomes a mediator of

relationships between factors that contribute to earnings, such as education, experience, productivity, and so on, and actual earnings.

Sorenson and Tuma (1981, pp.67-91) provide evidence concerning the impact on earnings, job advancement, and downward movement of being employed in a closed sector of the labor market, versus being in an open sector. Closed sector is defined as an employer/employee relationship wherein the employee obtains access to a better job when a vacancy occurs and can initiate action for advancement. In this model of employee-employer relations, called the vacancy competition model, the structure of opportunities and competitive advantages provided by personal resources like education are important. The open-employment relationship and the wage competition model of marginal productivity/human capital theory are assumed to prevail. In essense the employment relationship is controlled completely by the employer regardless of the wishes of the incumbent. In the closed employer-employee relationship, not only may the employee initiate upward movement when a vacancy occurs but an incumbent can hold a job until retirement or until choosing to leave. Sorenson and Tuma indicate that under these conditions earnings are likely to become attributes of the job rather than being related to the person. In an open employment situation, access to attainment of increased prestige and satisfaction may be obtained by offering to work at a lower wage rate than the incumbent or being more productive at the same wage.

Sources of closed-employment relationships include on-the-job training subsidized by the employer because skills may not be transferable elsewhere. Collective action through unionization is also a means through which employees gain bargaining power. These authors argue that the different roles of resources in vacancy competition and wage competition have important implications for the import of education in the attainment of occupational achievement. When competing for a vacancy, an employee's education is assumed to confer productive skills, whereas in wage competition it becomes a basis for allocating persons to jobs. The researchers believe that since resources formed prior to entry into the labor force continue to influence attainment, growth in attainment need not result from growth in productive skills. On the basis of theoretical formulations about open and closed employment relations, they derived the expectation that closed employment would produce mainly upward moves, and open jobs would produce both upward and downward moves. Sorenson and Tuma (1981) used data collected in the Johns Hopkins Life History Study (Blum, Karweit, and Sorenson 1969). The data consisted of two samples of the total population of males aged thirty to thirty-nine residing in the United States in 1968. One national sample was drawn, with a second, supplementary sample of blacks. The total number of 738 blacks and 851 whites was interviewed, constituting a 76.1 percent return for the national sample and a

78.2 percent return for the supplemental sample. From their analysis, the authors found that ability and education affected the rate of upward moves in both sectors positively and significantly. At the same time, the effects of ability and education on upward moves are much larger in the closed sector than in the open sector. They suggest that unmeasured personal variables may be more important in the open sector. Rates of downward moves in the white-collar and unionized blue-collar sector were very similar and much lower than those for the nonunionized blue-collar sector. To eliminate the possible importance of differences in resources and rewards in the two sectors, they matched characteristics of an average job and person to indicate that there is a much higher rate of downward moves in the open sector than in the closed.

Kalleberg and Sorenson (1979, p. 357) describe the theory that the labor market is divided into two distinct sectors with little mobility between them. The theory argues that the important distinction for analyzing the economy is that, between good and bad jobs rather than between skilled and unskilled workers. Workers are barred from leaving the secondary sector primarily because of institutional constraints and by a lack of good jobs. Consequently, workers in the secondary sector experience underemployment, and attempts to alleviate the problem must focus on creation of jobs rather than giving workers more skills and training. Five studies are reported which support this theory. One of the five done in Great Britain found the primary sector was characterized by relatively high measures of job stability, earnings, and opportunities for advancement and on-the-job training; the secondary sector exhibited lower measures of these characteristics.

Kalleberg and Sorenson's (1979, p.359) discussion of the concepts of internal and external labor markets has close parallels with the work of Sorenson and Tuma (1981) reported above on open and closed employer-employee relationships. The internal market is usually equated with a particular firm, which controls entry and often provides for promotion to higher level jobs in the firm along orderly lines of progression. A second internal market comprises a particular occupational group, usually a craft. Entry is controlled by the occupational group, mobility occurs among employers and the workers get security from their skills. The occupational group controls the competitive supply of these skills through restrictions on entry.

In relation to earnings, the determination process is discussed by Kalleberg and Sorenson (1979, pp.362-363) from the perspective of human capital theory. From this perspective, differences in kind of work performed rather than the amount of work are considered more important in determining rewards. The differences, in kind of work supplied, that are relevant to productivity are described in terms of ability, education,

experience, and training received on the job. These are viewed as investments,and differences in earnings represent compensation for the costs of the individual of obtaining these. Citing eight sources,these authors conclude that the human capital theory successfully explains the basic features of the earnings determination process.

Kallenberg and Sorenson review studies that confirm significant relationships between market concentration and wages after adjusting for the human capital of workers, some along the lines of the studies by Stolzenberg (1975) and Sorenson and Tuma (1981), and express the view that this stream of research is not necessarily inconsistent with human capital interpretations, since this theory allows for "market imperfections." Others, such as Stolzenberg (1975), argue that these so-called imperfections of the competitive marketplace are too important to ignore.

From the review of Kelleberg and Sorenson (1979, pp. 369-372) it is possible to gain some further insight into the impact of human capital forces and differential labor markets on women and blacks. Theorists and researchers taking the segmented labor market approach argue that blacks and women are disproportionately distributed into secondary jobs at the beginning of their careers and find it difficult to leave. Recall the significance of job of entry on subsequent occupational attainment found by Blau and Duncan (1967) and reported earlier in this paper. The problem is viewed as being one of systematic discrimination--i.e., not related to the demand for labor, deficiencies in skills or motivation--that operates indirectly to assign persons to "bad" contexts in which work is performed. Within the secondary sector there may be less access to on-the-job training and higher turnover rates, which in turn help explain the higher rate of unemployment of these groups. Some studies cited by Kalleberg and Sorenson have found no substantial differences in income returns to education between blacks and whites within detailed occupational categories. Stolzenberg (1975) emphasizes the point, however, that discrimination in all likelihood has occurred in selecting who would be promoted to specific detailed occupational categories. Another study found that primary-sector occupations generally maintain stable, and heavily male, sex composition. Secondary-sector occupations are more likely to experience increases in the proportion of workers of a particular sex.

In sum, findings from the sociology of labor markets support the influence of education, ability, experience, and on-the-job training in wage determination processes. Findings also point up, however, the ameliorating influence of types of labor market and employer-employee relations on the opportunity structure for job advancement and higher earnings.

Sociology of Work and Work Organizations

Miller and Form (1980, pp.186-187) present some of the principles derived from research that constitute a sociological orientation to work relations. These principles, among others, include the following:

1. Work is a group activity.

2. The social world of the adult is primarily patterned about work activity.

3. The need for recognition, security, and sense of belonging is more important in determining a worker's morale and productivity than the physical conditions of the worksite.

4. The worker is a person whose attitudes and effectiveness are conditioned by social demands from both outside and inside the work plant.

5. Informal groups within the work plant exercise strong control over the work habits and attitudes of the individual worker.

6. The first line supervisor is the single most important factor in determining the morale and productivity of a work group.

Studies within this specialization focus on work organizations; the work group; interpersonal relations in work; managerial practices; commonalities and differences between and within occupational work contexts; the socialization of individuals to the norms, rules, and practices of the organization; the personalizing of the organization or work as a result of the interaction between the personalities of role occupants and performances required, and the lifework of individuals, to mention some areas. From the body of knowledge available, I have selected specific findings pertinent to the vocational education outcomes being evaluated. The principles stated above provide a framework to which these specific findings can be related and so avoid the potential appearance of a lack of coherence or integration.

On the subject of the lifework patterns by individuals, Miller and Form (1980, pp.198-200) describe five periods of lifework pattern. These are the preparatory, initial, trial, stable, and retirement. The preparatory period includes early experiences in the home, school, and community. The initial period begins when the worker takes a first job in the marketplace, usually while still in school, and continues until education is terminated. The trial period begins when the individual seeks the first

full-time job and it continues until the worker has secured a work position in which to remain more or less permanently--three years or more. The stable period is defined as a period of persistence in the job for three or more years and continues until death, retirement, or entry into another trial period. The importance of these periods for the purpose of this paper resides in the fact that the feelings and attitudes of workers tend to reflect the kind of adjustments that characterize each period. All workers will not gain a stable work life, but Miller and Form contend that the normal thrust for a stable work life is a strain for the kind of job the individual has always wanted.

The trial period is characterized by high mobility in occupations and work plants. Workers tend to feel that they are working at a job in preparation for a more responsible job, or to find out if they want to remain at their present job or work plant, or are merely holding on until they can make a change. The stable period is characterized by low mobility. Workers feel that they have found the job and work plant where they intend to stay or find that they are unable to move from the job or plant. The lifework pattern for women who marry, have children, and withdraw from the labor force for a period of time is a different lifework pattern.

Two theories of causation of career patterns discussed by Miller and Form (1980, pp. 236-237) are the individual theory and the social theory. The first represents beliefs that personal motivation and hard work explain career patterns and that occupational success can be attained regardless of social origins. The social theory would impute the career pattern to social factors that have been identified as being related to career patterns, such as father's occupation, historical circumstances, father's income and education, financial aid and influential contacts, and social and economic conditions. Miller and Form contend that "an accurate weighing of the facts will demonstrate that the social background of the worker is a base of opportunities and limitations. As opportunities are enlarged the possibilities of occupational mobility are increased. Personal motivation and native ability are necessary to an enlarging career pattern. However, there is good evidence that the social backgrounds of workers are the crucial determiners in the number who are able to come into various occupational levels. The reservoir of human ability among all socioeconomic levels is greater than is generally assumed" (1980, p. 237). In describing the chain of events that lead to the typically narrow range within which mobility occurs, Miller and Form (1980, p. 246) include the obtaining of a first job by or through the help of friends or relatives, which is dependent largely on the background, place of residence, occupation, and connections of the father. The discovery of a regular occupation that approximates that of the father somehow fixes the employment followed throughout a lifetime, although not

the specific jobs. Following this is the income level, the place of residence, and general style of life, which determines social relations, and in turn the incentives, schooling, occupational training, and personal resources of children. They note that when this cycle is broken, increased formal education is the usual elevator of social mobility.

Group behavior at work is governed by formal and informal organization. Explicit policies, procedures, and organizational structure as contained in authorized manuals and organizational charts are among the components of the formal organization. The informal organization is made of congeniality groups, such as friendships and cliques; an organization and structure that define the relationships to other groups; codes of conduct for group members relative to activities within the informal social organization and codes that regulate conduct of group members toward management, and union, and other outgroups; systems of ideas, beliefs, and values that support the code of conduct and group activities; communication systems that inform members of ideas, sentiments, and occurrences essential for group solidarity and action (Miller and Form 1980, p. 361).

Informal work groups hold definite ideas regarding their occupation, the level of output, and supervision. These may or may not be consonant with management's ideas on the same areas. When these beliefs are in conflict, individual workers have difficult choices to make as to how far from the informal group code they can deviate to approach management's expectations without becoming isolated and excluded. Miller and Form (1980, p. 407) note that restriction of production is commonly found at all levels, irrespective of occupation. Since there is a group tendency to keep production within the range of the average worker and the concept of a "fair day's work," group norms penalize both the worker who overproduces and the one who underproduces. According to Miller and Form (1980), these restrictive practices are a part of the cultural tradition of all workers. This tradition is based upon the belief that employers make profit from all labor; that workers may produce more without earning more, even though the employer makes more profit; and that it is important to protect the job, and although there is enough work today there may not be in the future. Thus, a uniform production rate is the best course of action.

Actual productivity of employees has been found to be affected by numerous factors. Sutermeister (1976), cited in Miller and Form (1980, p.690), developed a diagram of the factors affecting productivity. The indications are that greater productivity depends on or is determined by such technical factors as technological development, raw materials, job layout and methods, and human factors such as employees' job performance. Miller and Form note that although this reduces the complexity somewhat,

the relationship between leadership, morale, and productivity is not clear.

One study cited by Miller and Form (1980, p. 698) found that the most important independent variables for predicting the productivity and satisfaction of workers were the degree of acceptance an individual has in the work group and the degree to which the individual identifies with the group.

Research in selected areas has found that supervisors rated high on their ability to get high quality and high productivity from their groups were described by employees as indifiduals (1) who are good at handling people; (2) with whom employees can discuss work-related and personal problems; (3) who pull for both the company and the employee; (4) who go to bat for employees; (5) who let employees work pretty much on their own, and give recognition for good work; (6) who recognize employees by training them for better jobs; (7) who bring work groups together so that problems can be discussed. Another study has found that the quality of first line supervision can make possible a productivity increase of 15 percent (Miller and Form, 1980, pp. 696, 698).

For first line supervision to have an effect on worker productivity, supervisors' behaviors must link in some way with the internal dynamics of motivational forces in the work group and individuals. As mentioned above, recognition, security, and a sense of belonging can become important motivators. Katz and Kahn (1978, p. 394) lend further support to these as they identify three important sources of internal motivation, namely value expression, self-determination and self-expression, and affiliative expression. The match between organizational goals and the individual worker's values leads to internalization of organizational goals, and performance becomes a source of intrinsic satisfaction as an expression of personal values. Research literature attests that self-expression and self-determination also lead to intrinsic satisfaction and are based on the variety, responsiblity, and challenge of the job. Affiliative expression can be met, potentially, by a work group if the individual feels a sense of membership and can identify with it. Values and norms that are systemic are shared by the majority of workers and indicate the appropriate and required behavior for individuals. Organizational activities play a critical role in determining norms and values. The norms of equity, reciprocity, and helpfulness are critical for the collective outcome. Organizations, however, are characterized by different approaches to achieving a high level of organizational effectiveness. Katz and Kahn (1978, p. 424) describe three motive patterns:

1. Legal compliance, which uses unambiguous symbols of authority backed by used or threatened penalties,

tends to produce minimally acceptable levels of performance.

2. Instrumental satisfaction, which uses rewards and is strongest when rewards are immediate, constant, and adequate. Behaviors produced vary, depending on whether rewards are systemwide or based on performance. Systemwide rewards keep people in the system but may not encourage performance much beyond the level of minimum acceptance. Individual rewards for performance are hard to apply in large scale organizations. One of the problems in rewarding individual performance is detailed by Kanter and Brinkerhoff (1981) in their discussion of the measurement of individual effectiveness. They note the interdependency among tasks to be performed in organizations and the result that an individual's performance is influenced by how well others perform. Further, the complexity, clarity, and predictability of work tasks effect the adequacy of the performance appraisal. Various approaches have been devised to deal with these difficulties, however, there is a lack of consensus regarding the adequacy of performance evaluations.

3. The internalization of organizational goals is the most effective approach but also the most difficul to achieve, for this depends on the organizational goals in relation to individual needs and values. High internalization tends to result in low absence and turnover rates, high productivity, and maximal spontaneity and innovativeness in service to those goals.

Katz and Kahn (1978, pp. 349-353) look at the specific rewards of increased pay and promotion within organizations, the procedures by which these are determined, and the impact on worker morale. They discuss research findings concerning the relative merits of use of piece rates or other pay for performance formulas versus a flat rate or payment for time of work. The use of piece rates varies among countries: approximitely 30 percent of the jobs in the U.S. are paid on this basis, as contrasted to 43 percent in the United Kingdom, 50 to 70 percent in Eastern Europe and the Soviet Union, and 63 percent in Sweden. Research findings are not an adequate base at this time for determining differential outcomes that these systems might produce. These authors note that large systems like business corporations or big school districts move toward uniform classification schemes in which increments are based on seniority or other visible indicators of performance. Relative to promotion, a major dilemma is the criterion to be used. There is a tendency

to assume that good performance at one level is an important factor in performing successfully at a higher level. This may or may not be valid, depending upon the skills required in the two positions. At the same time, worker morale and productivity have been linked to the perception of workers that productivity is essential for promotion. Yet there are insufficient numbers of higher positions for all workers. Katz and Kahn illustrate, as did Miller and Form (1980), that social considerations including race, ethnicity, and socioeconomic backgrounds can come into play when promotions are being decided. Their study leads them to find a systematic degradation of criteria for rewards.

In sum, the sociology of work and work organizations include theories and empirical research findings that delineate the organizational characteristics and work group attributes that impact on the worker's attitudes toward work, and satisfaction with work; the processes by which earnings are likely to be determined and increased; and the variables that influence chances of upgrading and promotion.

Socialization and Social Factors in Motivation

Socialization is the social learning by which human beings acquire the understandings, values, norms, attitudes, and beliefs that are uniquely human and a product of social groups. A number of agencies contribute to this socialization process. Those agencies to be considered here are the work organization, the school, and the family, in that order.

Relatively brief attention will be given to the socialization that adults experience during their work lives, since much that is relevant to socialization has been implicit, if not explicit, in the presentation on the sociology of work and work organizations. Mortimer and Simmons (1978, pp. 440-443), in a review and synthesis of research pertinent to adult socialization, note evidence relative to the importance of socialization of workers by employers and co-workers in the transition period from education to first job. The new worker is helped to eliminate the unrealistic and idealistic expectations that have been acquired from the mass media, formal schooling, and anticipatory socialization experiences, which inhibit adjustment. One phase is a destructive hazing period in which the new worker is assigned work and is subject to tests designed to demonstrate to the novice that there is much to be learned before being capable of filling the new role. Reality shock and some disillusionment set in, particularly if the worker had expected to be independent after formal schooling. A later phase is the importance of peers who join in to support the new worker in a "fellowship of suffering." This description was based on twelve studies cited by the authors. Katz and Kahn (1978, pp. 377-378) provide a similar description.

Reviewing ten studies, the authors point out that considerable floundering has been reported to occur during the early part of careers. Moving from job to job in hopes of finding a congenial job is particularly evident at lower white-collar and blue-collar levels. This is very likely a response to some of the early socializing experiences. If the worker successfully masters the challenges at this stage, evidence indicates that there are lasting positive effects on vocational adjustment and performance. "When all goes well," they report, "initially challenging and demanding organizational expectations engender high performance, which in turn, leads to satisfaction, high aspirations, a positive attitude to the task, and continued effective performace." Failure in the socialization process can also occur with the possiblity of resulting rebellion, withdrawal, or excessive conformity.

Relative to the school, there is some controversy as to whether education is closely linked to occupational attainment as a consequence of its effectiveness in socializing individuals between various curricula, in relation to ability and other attributes derived from familiar backgrounds. Since schools are believed to contribute to the development of attitudes and attributes that are positively associated with those needed for productive workers, educational attainment is treated as if these attitudes and attributes developed even when substantive evidence is lacking. This is the basic premise intended in the use of the work credentialism, another label more commonly used for the allocation theory.

Kamens (1981, pp. 111-126) reviews and synthesizes sixty-five sources pertinent to organizational and institutional socialization in education. He notes that although it is well known that education has important impacts on individual careers, there is disagreement as to how this effect is achieved. Research on ability grouping has produced inconclusive findings regarding the effects on learning rates. A number of studies cited found that organizational differences between schools have little influence on student abilities and ambitions at the high school and college level. Several case studies, according to Kamens, have found that teacher characteristics are important in influencing achievement, aspirations, and occupational attainment. There is some evidence that curriculum groupings impact on student aptitude, achievement, aspirations, friendship choices, school attitudes, and later educational and occupational levels. Work by Bachman and O'Malley (1980) and Sewell and Hauser (1980) also demonstrates no effects between schools. This raises one of the questions that Kamens seeks to address, namely, what is the appropriate unit of analysis to employ in research on school effects, the classroom, the program, or the total school? The second question he addresses is, What are the kinds of effects schools may have?

Kamens points out that schools allocate students to adult status and in the process ritually transform them. Thus, education redefines individuals in positive ways independently of any socializing effects. He cites the work of Young (1964) as persuasive of this view. Kamens proposes that an important link between the socializing theory and allocation theory is the notion of anticipatory socialization. Namely, that students learn the social identities of graduates from the program in which they are enrolled and the community meanings attached to these roles. Such identities and statuses would include occupational ones as well as others. Research studies cited to support this position were conducted in a juvenile-correctional school, advanced degree programs, in this country as well as in Japan and Latin America. He continues that where schools are given distinctive status-allocating functions, their internalizing social structure should gain in authority, with both formal and informal structures emphasizing those experiences defined as developing the traits important for future roles. Since the public seriously expects students to acquire these traits, students must take the process seriously themselves.

Relative to the propoer unit of analysis, Kamens notes that research in the U.S. lends credence that it is at the classroom and program level that schools have an effect. Similarly, research on school-wide organization effects have found minor influences on important student outcomes. Citing the work of Alexander and McDill (1976), Sewell et al. (1976), and Rosenbaum (1975), he reports that curricular groupings have important influences on a variety of important student variables: academic achievement, self-esteem, parental encouragement, educational achievement, and occupational status. He cautions against assuming uniformity of outcomes from various curricula, inasmuch as this assumes that the degree of differentiation between tracks is uniform in all schools and that curriculum location has a similar meaning throughout the system.

In reviews of research, some emphasis has been placed on the need for longitudinal studies which follow the same individuals through time, versus cross-sectional studies, which study different individuals at different points in their life spans. Several longitudinal studies have been in process for some time, each designed for different but overlapping purposes (Alexander and Eckland 1980; Sewell and Hauser 1980; Eckland and Alexander 1980; Bachman and O'Malley 1980; Parnes and Rich 1980).

Alexander and Eckland have surveyed and followed up on high school sophomores drawn as a national representative sample of sophomores from ninety-seven public high schools. The same researchers have been instrumental in the National Longitudinal Study of the High School Senior Class of 1972, involving 1,000 schools and approximately 18,000 seniors. These students were surveyed in October of 1973, 1974, 1976, and 1979. The results of these studies tend to confirm the relationships reported from

other studies relative to the variables of family socioeconomic status, ability, and educational attainment. In these studies, educational attainment was the variable of major interest, as a result of the research evidence that educational attainment is a significant factor in labor market benefits. It is unfortunate, from the perspective of this inquiry, that the longitudinal studies focused primarliy on the links between secondary education processes as these relate to college attendance. However, some of the findings that support the socializing influence of curricula provide a basis for inferring processes that exist in more specific program areas.

The results from a number of studies using these data show the pervasive influence of social background on aptitude, enrollment in a specific curriculum, class standing, educational expectations, academic self-concept, and ultimate educational attainment. Aptitude comes through as the primary determiner of school performance. Findings are consonant with the work of Sewell and his colleagues in the Wisconsin longitudinal study. Alexander and Eckland state that findings from analysis of these data support the likelihood that it is the social organization of curricula that influence educational attainment more than the actual pedagogy. In their words, "high status youth go further in school, on average, than their equally capable but lower status counterparts largely because: (1) they more often aspire to and/or expect to go further, that is, they are seemingly more highly motivated; (2) they are more likely to be enrolled in the college-preparatory high school curriculum and hence to benefit from the credentials, the coursework, and organizational facilitation that accompanies such track placement; and (3) they are more involved in social relations that are supportive of college-going aspirations" (Alexander and Eckland 1980, p.42). In examining the importance of parents, peers, and teachers in interpersonal relations important for educational attainment, they found that school personnel are by far the least consequential. The most salient are those relationships in the family and peer group. Participation in extracurricular activities, other than athletics, is strongly and independently associated with higher levels of academic performance and attainment (Alexander and Eckland 1980, p. 49).

Relative to the impact of teachers, Gage (1978, p. 64) states: "In every study of teaching that I know of such pre-instructional pupil variables (IQ, pretested achievement, and social class background) have accounted for more of the variance in pupil achievement than has either the teacher or the teaching variables. . . . This result appears whether the teaching lasts for fifteen minutes or a whole school year. The correlations of preinstructional variables with postinstructional achievement may be as high as .7 to .9."

Relative to sex, Alexander and Eckland (1980, p.43) found the one year gap in the average educational levels of EEO women and men is not due to women's having lower goals, poorer performance, or less social and interpersonal support. They suggest that marriage and the assumption of family responsibilities may be more powerful explanatory variables. This is substantiated by results of the National Longitudinal Survey of the civilian population (Parnes and Rich 1980, p. 169).

Relative to races in the study of 1972 seniors, Eckland and Alexander (1980, p. 201) found that blacks of the same socioeconomic states (SES) and ability level had similar social supports to attend college, indeed were somewhat more likely to have encouragement from parents, teachers, and counselors; to have friends who planned to attend college, and to believe they had the ability to do college level work. One area of difference was that the influences of curriculum, high school grades, and SES background on college plans were substantially greater for whites, while the influences of teachers, counselors, and ability test scores were greater for blacks.

The purposes of the youth in transition project (Bachman and O'Malley 1980, p. 129) included the following: learning more about the relationships between input characteristics at the start of high school for predicting later educational and occupational attainments; assessing the role of educational attainment in occupational attainment, as compared to family background and intellectual ability; to examine the occupational attainments of dropouts with those of high school graduates; to determine the impacts of post-high school environments and experiences on values, attitudes, and behaviors. The study sample was composed of 2,213 tenth grade boys in eighty-seven public high schools selected in a manner to provide an essentially unbiased representation of tenth grade boys in public high schools in the contiguous U.S. Seventy-four percent of the original panel continued to participate in the study eight years after the initial data collection. Using socioeconomic status, number of siblings, ability composite, average grades in the ninth grade, college plans, negative school attitudes, delinquent behavior in school, curriculum (college prep and other), and grade failure, they were able to account for 34.5 percent (adjusted) of the variance in educational attainment. Correlations between these variables and educational attainment ranged from .53 for ability composite to a -.39 for negative school attitude.

Findings relative to occupational attainment and education were these:

1. Amount of education showed very little effect on the hourly wage rates of young men five years out of high school.

2. There were very few differences in employment versus unemployment rates associated with level of attained education except for high school drop-outs.

3. Job status was rather strongly correlated with educational attainment, with college graduates holding the higher status jobs and rather small differences among other educational levels.

4. A qualified "no" to the question, "Does education seem to increase job satisfaction?" The positive and negative effects of education cancelled each other out, they note, since more highly educated persons feel more dissatisfied in a job that does not meet their expectations than does a less educated person in a comparable job.

5. The variety of other environments and experiences, e.g., military, marital/parental status, urbanicity, region, and county level labor market conditions in general, showed weak relationships with occupational outcomes, particularly when background and ability variables were controlled (Bachman and O'Malley 1980, p. 137).

Parnes and Rich (1980, pp. 162-169) summarize results of studies using the four subsets of the civilian population that constituted the data base for The National Longitudinal Survey (NLS):

1. Similar educational attainment processes among older men and women continue to prevail among the younger generation.

2. Strong positive relationships exist between IQ and years of school completed; socioeconomic status is found to be significant.

3. All studies found a significant negative relationship between the number of siblings and years completed.

4. Relative to curriculum using the general curriculum as a reference point, those in the college preparatory program achieved higher levels of educational attainment. Enrollment in the vocational curriculum was generally associated with completion of fewer years of schooling and was statistically significant for white males. When educational attainment was specified as the probability of completing thirteen or more years of education, the negative coefficient for the vocational program was statistically significant for both white and black men

and for black women. Enrollment in the business and office curriculum reduced the probability for completing at least one year of college for both white and black young women. When the dependent variable was specified as the completion of thirteen years of regular schooling or having some post-high school training, the coefficients for occupational high school curricula were geneally smaller and in no case statistically significant (p. 168).

5. The effects of low ability, low SES, and enrollment in a nonacademic program tend to be mitigated by opportunities for postsecondary training.

6. There is evidence that some occupational programs have a more positive effect on the educational attainment for students of low ability (lowest one- third of the scholastic aptitude distribution) than for students more favorably endowed (p. 169).

7. The depressing effect on educational attainment of living in the south for the generation educated during the 1920s and 1930s shrank considerably for blacks educated in the 1960s.

Bachman and O'Malley (1980) and Parnes and Rich (1980) provide some data regarding variables associated with dropping out of school prior to high school graduation. Parnes and Rich (1980, p. 174-175) reported that in studies from NLS data, ability, parents education, parental occupational status, and being over-age in grade were consistent and important predictions of dropping out. Working while in school generally had the effect of reducing the likelihood of dropping out, although this varied in importance at different stages of the high school career. Bachman and O'Malley (1980, pp. 138, 146, 155-156), defining drop outs as those who lack a high school diploma five or more years after droppingout, report that they found very little difference between drop-outs and high school graduates in the kinds of jobs they held. On the average, job status, hourly wage rates, and subjective sense of job satisfaction were the same. One significant difference was that drop-outs, after controlling for family SES, number of siblings, and intellectual ability, were almost twice as likely to be unemployed. In examining patterns of delinquent behavior, they state that there was evidence of delinquency as early as junior high school and that rather than dropping out causing delinquency, it seems more likely that delinquency causes dropping out.

Among the motives, affective status, and values measured by Bachman and O'Malley (1980, pp. 142-144), self-esteem showed a good deal of stability during the high school years. The need for self-development and for self-utilization showed a declining

correlation with eventual educational achievement. Generally, occupational aspirations reported were rather high and data indicated that educational attainment plays a substantial role in maintaining high occupational aspirations. Evidence also showed that those who had attained fairly high status jobs after five years maintained high long-term occupational aspirations; those whose actual job attainments were lower made downward adjustments in their long-term goals.

A number of the findings of the Sewell and Hauser studies (Sewell and Hauser 1980) have been directly or indirectly reported at various points in previous sections of this paper. One discrepancy, however, is that the results of their work raise questions about the longterm importance of curriculum tracking as a significant mechanism of social stratification. Recognizing conflicting research findings from other studies, they label their conclusions tentative. What Sewell and Hauser (1980, p. 64) do provide is a description of the social psychological factors in educational aspirations. Based on support from extensive analyses of their data, they describe a cycle of reinforcing conditions for both higher status youth and lower status youth. Specifically, higher status youth measure higher on tests of cognitive skills than do lower status youth, as a concomitant of the intellectual environment in their homes and parental emphasis on academic achievement. In the light of testing high on cognitive skills, children continue to receive the encouragement of parents and significant others; they achieve good grades, and encouragement from teachers and peers continues. A significant outcome is the development of high educational aspirations and attainment. Parents also serve as models, and parental levels of education, both mother's and father's, have consistently been highly related to offspring's educational attainment. Sewell and Hauser cite other studies that support these dynamics (1980, p.66). The importance attached to educational aspirations by Sewell and Hauser is based upon their finding that educational aspirations have a strong effect on educational attainment, independent of its relationship to measured intelligence and socioeconomic status; aspirations also mediate much of the effect of those two variables among both males and females (1980, p. 70).

Sewell and Hauser added son's earnings as a dependent variable and found that about one-half of the effect of educational attainment on earnings is due to its effect on occupational achievement, and one-half is due to its direct effect on earnings. Higher education leads to better jobs and to higher pay at any level of occupational status. The variable that has the largest effect on son's earnings of all the variables in the Sewell-Hauser model is the parents' average annual income. The social-psychological model is not particularly effective in explaining earnings. It did explain 54 percent of the variance in educational attainment, 43 percent of the variance in

occupational status (in 1964), and only 7 percent of the variance in earnings (in 1967). They point out that many of the college educated men were still in graduate and professional school or had just entered the labor market, so that there was a truncating at the top of the distribution of earnings. A later analysis with extended personal histories through 1971 showed a regular pattern of the growth in the effects of schooling and ability on earnings. In the recent period the effects on earnings of other social-psychological factors are still mediated by length of schooling (Sewell and Hauser 1980, pp.74-75).

Educational aspirations, as used in the studies by Sewell and Hauser (1980), are contained within the broader concept of ambitions. Since some of the outcome measures to be evaluated for vocational education include increasing educational and occupational aspirations, it is germane to examine research and theory relevant to the processes by which aspirations, and ambitions develop. Spenner and Featherman (1978) provide a review and synthesis of literature on achievement ambitions. They note that level of aspiration has become the modal ambition concept in the sociological literature (1978, p. 375). According to their review, "the development of achievement ambitions in childhood and adolescents draws on three sources: (a) on surrounding constellations of social psychological factors associated with the self as an agent of one's own development, (b) socialization in the family of origin, and (c) social influences for achievement stemming from institutional contexts outside the home (e.g., the school peer associations) (Spenner and Featherman 1978, p. 384).

Achievement ambition is but one of many beliefs, knowledges, skills produced within the self by sociobiological, sociohistorical, and cultural influences. A number of elements of the self have been identified as correlates of achievement ambitions. These include locus of control, self-esteem, future orientation, delay of gratification, competence, intelligence, risktaking, and intrinsic and extrinsic motivations and values (Spenner and Featherman 1978, pp. 384-385). Research has focused on family determinants of achievement ambitions. Spenner and Featherman review the conflicts and agreements among a large number of studies and conclude that one fairly well-documented relationship is that higher socioeconomic origins facilitate an affective level in the child-parent relationship that is conducive to the types of role learning that engender high achievement orientations. They add the qualification that it is based upon relatively weak correlations (1978, p. 389).

Familial contingencies such as birth order, number of siblings, farm origins, ethnicity, and broken homes among others have been examined in a number of studies. Though evidence for some relationships has been found, some of these have not been replicated, or results of several studies are inconsistent. A

number of studies have examined the import of a matrix of significant others for achievement ambitions, the theory being that significant others serve as models. They also give encouragement and discouragement and hold expectations for the individual's performance. The impact of significant others appears to vary for gender and race. Parents and peers still appear to be direct determinants of educational ambitions for white females. But the influences from others are weaker determinants of occupational aspirations for white females, even more so for black adolescents, than they are for white males (Spenner and Featherman 1978, p. 393).

Relative to student-teacher relationships, they note that the relationships are complex but that recent evidence suggests that teachers' influence on aspirations is generally small compared to that of parents and peers. To the extent that teachers mold aspirations, they appear to do so without regard for social origins. Two studies cited by Spenner and Featherman show that student ambitions may actually exert a greater influence on teacher expectations than vice versa (1978, p. 393). Relative to significant effect of schools per se on achievement aspirations, they conclude that it is fair from existing research to say that it has yet to be demonstrated (Spenner and Featherman 1978, p. 395).

Why are aspirations, either educational or occupational, viewed as significant? In the search for explanatory variables of educational and occupational attainments, aspirations hold modest predictive power. The total effect of educational aspiration on educational attainment was around .33, while the figure for occupational aspirations during the late high school years ranged from .30 to .16. Senior-year occupational aspirations have predictive value for net occupational achievement in the middle career that they do not have for early career attainments (Spenner and Featherman 1978, p. 405).

Ambition as a variable to explain adult achievement is minimal, according to findings from a number of studies reviewed by Spenner and Featherman. They cite recent research by Duncan and Morgan (1975) of a large national sample of households, which supports the view that the economic fortures of individuals and families over nearly a decade are primarily the result of life cycle contingencies--job losses, childbearing, divorce, migration--rather than ambition (Spenner and Featherman 1978, p. 407).

Aspiration has been defined by Lewin as goal-setting behavior in an environment of personal values and subjective probabilities for success in attaining the goal in question (Spenner and Featherman 1978, p. 375). Aspirations are one form of motivating forces. Generic components of motivation, according to one theory of motivation, are valence of the goal, the connection of

a particular means with the goal, and the effort required in relation to the amount of reward by achieving the goal. Katz and Kahn (1978, pp.335-337) point out that a number of behavioral outcomes are possible, contingent upon the connections between these three dimensions. A strong positive outcome requires a very valuable, much desired goal; means that are very closely connected to the goal; and benefits that clearly increase with the amount of energy expended. This model of motivation will be helpful in evaluating the appropriateness of some outcomes for vocational education.

In sum, research on adult socialization shows that a new worker entering the work place is viewed as a novice who needs to be made aware that much is to be learned before acceptance as a co-worker. The socialization in the work place goes through identifiable stages. If the new worker is able to master the challenges during this period, it is indicative of the likelihood of a favorable occupational adjustment. The frequent job changes that occur during the trial period of entering the labor force may, in part, be prompted by the specific nature of the efforts to socialize the new worker to the demands of the work place.

Schools are perceived as socialization and allocation or credentialing agents. Research is quite consistent on the finding that differences between schools apparently are so minimal in the features important to achieving specific student outcomes that findings have failed to show significant differences in student outcomes when controlling for background and ability. Research does find some differences within school curricula to impact on student outcomes. However, the social organization of these curricula and the nature of the interpersonal support system developing are found to be more important than the pedagogy. Within the interpersonal support system, the influence of parents and peers consistenly outweighs the influence of teachers.

Research findings support the validity of a social psychological model of the process by which the family exerts the very considerable influence on the development of educational aspirations, the level of tested cognitive skills, academic achievement, the choice of significant others and curriculum, stimulating the dynamic interaction among these forces that reinforce each other. In the case of higher status youth, these forces converge to promote higher educational attainment that is strategic to higher occupational attainment, not only immediately following completion of education but for a longer period in the work life. For lower-status youth, these forces converge to promote lower educational attainment, higher risk of leaving school before high school graduation, and the critical outcome of affecting the first job attained. The nature of the first job tends thereafter to become a more significant variable in subsequent occupational attainment.

Research findings continue to point to the family and peers as the more significant influences on the development of ambitions and aspirations. Although educational and occupational aspirations are moderately powerful predictors of educational attainment, they are less effective in predicting occupational attainment. The best evidence supports the view that occupational attainment and the economic status of families and individuals are more the results of lifetime contingencies, including job losses, migration, divorce, and health problems, rather than ambition.

Lastly a model of motivation was described, which included the links between the valence of the goal, the closeness of the con- nection between means and the goal, and the magnitude of the reward in relation to the amount of energy required to attain it.

Preliminary Considerations in the Evaluation of Selected Outcomes

Sociological conceptualizations and findings germane to evaluating the eighteen selected outcomes have been presented. The detail and some redundancy in these materials were included in order to have the reader share as much as possible, with the constraints of time and space, the immersion in the literature that will guide my evaluative recommendations and be the basis of my rationale. I wish to reiterate the fact that the materials employed were in many cases reviews and syntheses of research and not single empirical studies. Indeed these predominate. Hence when a single or joint author is referenced as evidence, this frequently reflects many studies that have contributed to the generalization. All of those that are single studies have been based on samples of the national population. Some have drawn supplementary samples of blacks in order to be able to make comparisons between blacks and whites. Most have had high response rates and an adequate number of cases to be worthy of serious consideration. Methodological adequacy has been considered, and although the perfect study remains to be found, many of these studies have been the product of the most experienced and sophisticated researchers in the field. Hence, I have a sense of ease in accepting these as constituting the most accurate systematic, empirically derived knowledge and insights available.

A brief recap of some of the premises pertinent to this evaluative effort is in order.

First, an evaluation is a judgment about the appropriateness and reasonableness of selected outcomes for vocational education, based on the best evidence available.

Second, human behavior is determined by multiple factors, some more significant than others, some known, many inferred, and many unknown.

Third, three interacting conditions increase the strength of the rationale provided for declaring an outcome appropriate and reasonable. These are: (a) the more the explicit objectives and activities of the intervention (vocational education) are directly related to a particular outcome, the greater the likelihood of the interventions contributing significantly to the outcome; (b) the more powerful (duration, intensity of involvement, scope and depth) in comparison with other known contributing factors, the greater the likelihood that the intervention contributes significantly to the outcome; (c) the shorter the lapse of time between the intervention and the measurement for the expected outcome, the greater the likelihood that the intervention made a significant contribution to the outcome (Blau and Duncan 1967, p. 403; Sewell and Hauser 1980, p. 81).

In effect, these three interacting conditions become the standards by which each outcome is evaluated. When the first condition is met, and it is known that education is one of the more influential known factors contributing to an outcome, and the lapse of time between the completion of education and measurement of the outcome is comparatively short, an outcome will be judged appropriate and reasonable. When all three are absent, the outcome will be judged inappropriate. When the outcome coincides with a secondary objective, or one believed to be an indirect consequence of one of the primary objectives, and when education, as one of several known factors, has been shown to have a weak relationship with the outcome, and when the lapse of time between education and the measured outcome is comparatively long, the outcome will be judged inappropriate or appropriate with specified qualifications. To render these judgments entails some assumptions about vocational educational programs; drawing some conclusions regarding the relative weight to be given some evidence versus other evidence in determining the power of vocational education as compared to other known factors; making assumptions regarding the time period within which outcomes are to be measured. Another task is assessing the soundness of inferring that findings relative to all education--i.e., K through high school, and postsecondary through graduate--apply equally to vocational education programs at the secondary and postsecondary level. Given the process, it is apparent that there is room for disagreement among equally reasonable persons.

In order to be as clear and as succinct as possible, the outcomes have been presented by clusters in which commonality or some overlap exists either in the outcomes themselves or in the evidential base to be used.

First Cluster of Outcomes

The outcomes evaluated in this first cluster are acquisition of useful occupational skills, supply of trained workers for labor market needs, upgraded occupational competencies, and

supply of retrained workers. Acquisition of useful occupational skills is the core, in my view, of the other three. The outcome dealing with vocational education producing trained workers for the labor market more precisely extends "useful" beyond solely personal considerations to the economy. Both upgrading and retraining suggest the acquisition of useful occupational skills within the framework of skills acquired at some earlier time. These outcomes are therefore overlapping, rather than mutually exclusive. Among the four, some have the sound of responding to a societal need, others to both societal and individual needs. In one sense, at least as concerns occupations, individual needs and societal needs are the two sides of the same coin.

According to my experience, any program called "vocational education" has as a primary objective the transmission of useful occupational skills, so that students enrolled will be trained for jobs available in the labor market. Specific programs may be designed to provide upgrading of skills within the same occupation when significant changes in technical processes or job differentiation take place or to retrain workers whose skills have become obsolete and employment requiring those skills is no longer available.

In research on factors related to job status, educational attainment has been found to be relatively strong (Blau and Duncan 1967, p. 403). These studies have, except in one case (Parnes and Rich 1980), stopped short of examining vocational education specifically. However, high school graduation versus dropping out and some college or postsecondary education compared to college graduation have been points of inquiry. The generalized finding is that the larger the amount of education, the higher the job status, and the lower the educational attainment, the greater the likelihood of unemployment. Perhaps even more to the point is the notion that curricula within high schools do contribute to both the allocative and socializing functions of youth by the social organization of the curriculum, if not by the pedagogy (Kamens 1981; Bielby 1981; Alexander and Eckland 1980). Although the studies have focused on the reinforcing dynamics of parental encouragement, peer support, and teacher encouragement for college, which in turn reinforce the youth's educational aspirations, I believe it quite sound to infer that similar reinforcing dynamics occur for youth who select programs to prepare for specific occupations. Indeed to describe such processes in the college preparatory curriculum is a matter of describing differentiation, which implies a coalescence within other program areas that helps set the areas apart. The expectation of parents, youth, employers, and community for specific, even if "ritualistic" redefinition from unskilled to skilled as posited in the allocation-credentialing theory (Kamen 1981, p. 113) support the position that educational attainment is among the more powerful known factors to contribute to job status. Bachman and O'Malley (1980, pp. 138-153) provide evidence for limited power

and considerable power for education as it pertains to secondary education. They report that differences between high school drop-outs and graduates were minimal relative to job status, hourly earnings, and so on. The exception, an important one, is that drop-outs are almost twice as likely to be unemployed as high school graduates. They attribute this in part to lack of motivation to work, to being as ill adjusted to work settings as to the school settings, and to the emphasis employers place on having a high school diploma to compete. One possible explanation is that the number of high school graduates in nonvocational curricula was larger and tended to cancel out some differences due to occupational skills. Another, to which I give even greater weight, is that entry level jobs in white collar occupations and manual occupations vary within a fairly narrow range of status. Similarity in status may not provide much information about types of skills. Bachman and O'Malley also state, "Although research on school socialization has been disappointing, we are not asserting that school socializing effects do not occur. That would be nonsense. At the levels of specific training for specific competencies, educational institutions from kindergarten to advanced professional schools certainly contribute to learning on the part of their students" (1980, p. 153). See also Hyman and Wright (1971, p. 66).

Given then (1) the directness of the link between outcomes and presumed objectives of vocational educational programs, and (2) the evidence that educational attainment is significantly linked to occupational attainment, it is appropriate and reasonable to expect that at the successful conclusion of a vocational program, students would be able to demonstrate that each had acquired useful occupational skills--as individuals being initially trained, retrained, or upgraded--and thus constituted a trained worker for the labor market.

Given the findings that the processes of educational attainment and occupational attainment do not appear to be different for men and women, (Sewell and Hauser 1980; Alexander and Eckland 1980, p. 43) or for racial groups (Eckland and Alexander 1980, p. 201), even though there is variability in job status and earnings, these outcomes are considered appropriate for all levels, secondary and postsecondary, and for all special categories of students.

Second Cluster of Outcomes

The outcomes of safe work habits and techniques, placement in a job related to training, satisfactoriness to employers, and increased potential for entrepreneurship constitute the second cluster to be evaluated. The first outcome in this cluster is assumed to be integral to acquiring useful occupational skills and therefore is presumed to be among the primary objectives of

instruction in vocational education. In the materials searched, very minimal information was found on the subject of safe work habits and techniques. Katz and Kahn (1978, pp. 587-588) discuss hazards at work. The focus of their attention is largely on physical hazards in the work place subject more to action by employers than employees. Thus, on the basis of the rationale that programs are the more powerful determinants of specialized competencies that programs have been designed to accomplish, I conclude that this outcome, safe work habits and techniques, is appropriate and reasonable when measured at the conclusion of the occupational training. Given the importance of the physical conditions under which workers perform (Katz and Kahn 1978, pp. 587-588), and the importance of the informal work group in setting informal rules about work (Miller and Form 1980, pp. 359-411) on the job, I conclude that vocational education would cease to be a powerful determinant in comparison to more immediate variables on the job site, hence I judge the outcome inappropriate when used six months or later after job placement.

Satisfactoriness to employers and placement in a job related to training are presumed to be secondary, rather than primary objectives, of the large majority of vocational programs. Evidence relative to the strength of education as compared to other factors in employers' satisfaction with workers could only be inferred. Specifically, the socialization that occurs for each new worker (Katz and Kahn 1978, p. 378; Mortimer and Simmons 1978, pp. 440-443) would lead one to infer that rarely does any employing organization find that a new worker comes with the skills and information about work practices to dovetail adequately with the particular and undoubtedly in some ways unique procedures of a particular employer. Further, it seems unlikely that the most competent teachers could know and incorporate into their instruction the variations in practices that exist among a variety of employers. In the same line of reasoning, it seems unlikely that institutional vocational education programs would be the sole source of workers of any particular employer. For some jobs, then, on-the-job training that could be more precisely coordinated with the particular employer's practices and needs would seem highly probable. Given these factors--that satisfactoriness to employers is necessarily a secondary rather than a primary objective of instruction and the evidence that employers via work groups routinely socialize new workers to the particular employing organization--this outcome is considered appropriate and reasonable only when it is measured within six months of employment and only when it is noncomparative with other workers. In brief, it is reasonable and appropriate that employers should find graduates of vocational programs satisfactory employees within the first six months. After that period, influences in the work place would become stronger forces on employee behavior, potentially tangential to the skills used but nonetheless significant in determining satisfactoriness to the employer.

The evidence with reference to placement in a first job is sparse also. Any conclusions are largely inferential, based upon findings regarding the sociology of labor markets, and links between social origins and education and first job, all of which have been presented in detail in the first section. The link between education and first job is comparatively strong (Blau and Duncan 1967, pp. 170-171; Kamens 1981, pp. 111-126) among known variables. Education in this analysis, as most analyses, encompasses amount of education rather than type of education. Thus two dimensions of secondary and postsecondary vocational education could potentially be involved in impacting upon job placement per se, namely, simply that graduates of vocational programs have more education than an early leaver and the specific occupational competencies taught (Bachman and O'Malley 1980, p. 153). Given the variability of employment opportunities and the fact that the most important factors affecting employment opportunities are macroforces, this outcome is judged appropriate and reasonable only when personnel resources within the vocational educational program have been allocated specifically for placement of graduates--in brief, when placement becomes a primary objective and activities are designed and implemented to accomplish it.

The last outcome to be dealt with in this second cluster is that vocational educational programs increase the potential for entrepreneurship. I presume that this outcome is being considered for all vocational programs at the secondary and postsecondary level, and that some of these programs have been specifically designed to prepare students to become entrepreneurs. I presume, also, that in the former programs, preparation for entrepreneurship is a secondary if not a more peripheral objective rather than a primary objective, as in the latter case. In the former, skill acquisition would be the base from which the student would build some business.

Evidence on entrepreneurship within the boundaries of sociology was limited to two brief references. Neither of these were particularly germane to the task. Thus my conclusion on this outcome was tentative and based on two of three criteria. Given these limitations, I conclude that if a primary objective of a vocational program is to prepare students in not only occupational skills but also those business skills necessary for becoming an entrepreneur, the outcome is appropriate and reasonable. This is based on the estimate that students entering such a program would be more likely to have a reasonable measure of the other personal resources essential to such an endeavor (i.e., high motivation, self-initiative and discipline, and financial backing commensurate with that needed, among other known factors). When preparing entrepreneurs is not a primary objective, it is not an appropriate or reasonable outcome to expect.

In sum, demonstration of safe work habits and techniques, satisfactoriness to employers, placement in a job related to training, and increased potential for entrepreneurship are judged appropriate and reasonable only under conditions specified above, i.e., they receive qualified acceptance.

Third Cluster of Outcomes

The six outcomes evaluated as a third cluster are increased earnings, increased job satisfaction, increased productivity, improved quality of work, enhanced job advancement, and enhanced leadership capabilities.

Given (1) increased earnings are presumed to be an indirect rather than a direct outcome from the objectives of vocational education instruction; (2) evidence that earnings are influenced considerably by industry-specific effects (Stolzenberg 1975, pp. 645-665) that vary for occupations; (3) open and closed employer-employee relationships (Sorenson and Tuma 1981, pp. 67-79); (4) amount of education in the total spectrum and class position (Wright and Perrone 1977, pp. 32-55; Sewell and Hauser 1980, p. 74; Bielby 1981, pp. 7-14 among others); (5) no significant differences between employed dropouts and high school graduates (Bachman and O'Malley 1980, pp. 138-156); (6) the effects on earnings of being in the primary or secondary labor markets, internal or external labor markets (Kalleberg and Sorenson 1979, pp. 351-379) and unionized or nonunionized sectors (Stolzenberg 1975, pp. 645-665); and (7) the likelihood of seeking to substantiate outcomes both in the short and longer time periods, I judge increased earnings to be an inappropriate and unreasonable outcome for vocational education.

Increased job satisfaction is presumed to be an indirect rather than a direct outcome of primary and secondary objectives of instruction in vocational education. Given (1) the consistent evidence of generally high levels of expressed job satisfaction for all workers (Levitan and Johnston 1973, p. 71; Miller and Form 1980, p. 133); (2) the consistent evidence that job satisfaction increases with the degree of skill and responsibility a job entails and that professional and managerial workers consistently have the highest satisfaction, with clerical and manual workers intermediate in satisfaction, and unskilled lowest (Katz and Kahn 1978, p. 364; Shepard 1977, p. 8); (3) the evidence that employed dropouts have the same level of job satisfaction as employed high school graduates (Bachman and O'Malley 1980, p. 137); (4) the relationship between age (younger, less satisfied) and job satisfaction (Campbell, Converse, and Rodgers 1976, pp. 299-302; Miller and Form 1980, pp. 198-200); (5) the significant relationship between job satisfaction and other dimensions of life satisfaction (Campbell, Converse, and Rodgers 1976, pp. 299-302); (6) the significance of acceptance by the work group

(Miller and Form 1980, p. 698) for both productivity and job satisfaction, I am to conclude that vocational education is a minor contributing variable to job satisfaction in the immediate, near, and distant future from time of program completion. Thus, increased job satisfaction is an inappropriate and unreasonable outcome for vocational education.

Increased productivity is presumed to be an indirect outcome of the level of skill development and attitudes towards work developed by vocational instruction. Hence it is less explicitly linked to the primary objectives of instruction. The evidence indicates that factors in productivity include technical aspects such as work layout, materials, technological development, leadership, worker morale, worker performance, first line supervision, work group norms regarding output, and management policies and practices as hygiene variables (Miller and Form 1980, pp. 186-187, 407, 690, 696-698; Katz and Kahn 1978, pp. 394-424). One final bit of support is that "how-to materials" on increasing productivity focus on job restructuring, job enrichment, autonomous work groups, participative management, among other work context variables (Cummings and Malloy 1977). Given that these job related factors are more immediate to the worker and have far more direct impact on achievement of goals and attainment of needs than the vocational instruction completed, increased productivity is not an appropriate and reasonable outcome for vocational education.

The evaluation of the outcome, improved quality of work, follows without exception the line of reasoning that pertains to increased productivity. That is, quality of work is presumed to flow from the skills and attitudes acquired in vocational instruction, the primary objective. The same evidence cited relative to productivity supports the contention that the weight of factors on the job is more immediate and more instrumental to the worker as it relates to the quality of the work than is vocational instruction. Given these considerations, improved quality of work is not an appropriate and reasonable outcome for vocational education.

Enhanced job advancement, like the preceding outcomes, is presumed to be an indirect consequence of vocational instrucion. The exception to this may occur if the vocational program has been designed as a means of upgrading workers with the specific intent of enabling them to assume more responsible positions. In this type of situation, enhanced job advancement as an outcome is more likely to be appropriate. In the former case, which I presume to be more frequent, however, it is quite questionable whether it is an appropriate outcome. Given (1) the evidence that education is only slightly more strongly related to occupation at a later time than first job and the difference should not be overemphasized (Blau and Duncan 1967, p. 170); (2) the importance of ability and aptitude for both educational attainment and

adult socioeconomic status (Bielby 1981, p. 14); (3) the importance of structural variables such as differential opportunities for advancement as reflected in specific industries, primary and secondary labor markets, internal and external labor markets (Bielby 1981, p. 18; Stolzenberg 1975, pp. 645-665; Kalleberg and Sorenson 1979, pp. 351-379); (4) the evidence of boundaries to vertical movement within specific occupations (Miller and Form 1980, pp. 229-249); (5) the limitations on the number of advancements available in relation to the number of workers with potential for promotion; (6) the impact of seniority and union-negotiated guidelines; (7) the difficulty of assessing workers' performance (Katz and Kahn 1978, pp. 349-353; Kanter and Brinkerhoff 1981, p. 339); and (8) that economic progress of individuals and families appear to be due to life contingencies and the chance and risk factors that exist for each person rather than to ambition (Spenner and Featherman 1978, p. 407; Miller and Form 1980, p. 247-252), enhanced job advancement is not an appropriate and reasonable outcome for vocational education.

Enhanced leadership capability is the last outcome to be considered in this cluster. Development of leadership skills is presumed to be a specific objective only of vocational area clubs associated with particular occupational programs such as Decca, FFA, and VICA. It is presumed that it is at best indirectly related to occupation-specific skill development. Given the length of time and degree of involvement in club activities; the fact that these are presumed to be voluntary, dependent on self-selection of students with the attitudes and family support to participate, in contrast to others not having these personal and familial supports, the youth involved constitute a select population rather than one representative of all students enrolled in vocational education.

Given the sociological evidence (1) that the majority of Americans do not belong to formal community and civic organizations; (2) that participation in voluntary associations is directly and consistently associated with socioeconomic status, as indicated by occupation, education and income; (3) that a smaller percentage of those in the young categories than those in older categories are involved (Hyman and Wright 1971; Foner 1979, p. 227); (4) that there is some evidence that personality variables and attitudes interact in voluntary associations chosen (Smith 1975, pp. 247-260); (5) that the study of leadership has led to the conclusion that the traits of the leader that seem to be necessary and effective in one group or situation may be quite different from those of another leader in a different setting; (6) that certain minimal abilities may be required of all leaders but that these traits will also be widely distributed among non-leaders (Miller and Form 1980, p. 661), I conclude that enhanced leadership capability is not an appropriate and reasonable outcome for vocational education, either in short-term follow-ups or long-term follow-ups.

In brief, increased earnings, increased job satisfaction, increased productivity, improved quality of work, enhanced leadership capabilities, and enhanced job advancement are not appropriate outcomes for vocational education. Relative to job advancement, the one exception would be for a vocational program specifically designed to upgrade competencies, with the explicit objective to enable workers to become promotable.

Fourth Cluster of Outcomes

Motivation for educational and occupational achievement, positive attitude toward work, increased awareness of need for basic academic skills, and reduced dropout rate constitute the fourth and final cluster of outcomes to be evaluated.

Motivations for educational and occupational achievement are presumed to be secondary objectives of most vocational education programs, but considered important affective outcomes to be sought. Given the present limited knowledge about how to develop and/or change attitudes, it is further presumed that instructional activity is designed largely to focus on skill acquisition, with less effort directed to affective outcomes (Hyman and Wright 1971, pp. 66-67). Given the evidence (1) that social origins and the resulting familial and significant other relationships interact with native ability to mold aspirations and attitudes (Kerckhoff 1972, pp. 55; Sewell and Hauser 1980, pp. 64-73); (2) that these have good stability during the secondary school years (Bachman and O'Malley 1980, pp. 142-144); (3) that researchers and reviewers of research consistently conclude that school personnel have the least effect (Alexander and Eckland 1980, p. 49; Gage 1978, p. 64; Spenner and Featherman 1978, pp. 393-395; Sewell and Hauser 1980, p. 73; Kamens 1981, pp. 111-126; Bielby 1981, p. 11) when compared with family peers, I conclude that motivation for educational and occupational achievement is not an appropriate or reasonable outcome for vocational education, either for short or long term follow-up studies.

Positive attitude toward work is an objective of vocational education; however, inasmuch as it too is in the affective domain, it is less amenable to direct instruction. As with most attitudes, early socialization within the family does have import for attitudes for work (Kerckhoff 1972, p. 55). The reinforcement by significant others and peers from families with similar values and comparable socioeconomic status persists from infancy into adult life; is a consistent and pervasive force in the lives of young people and into adulthood (Mortimer and Simmons 1978, pp. 449-443; Miller and Form 1980, pp. 198-200; Katz and Kahn 1978, pp. 377-378). Of further import is the conclusion that people are not easy to change (Etzioni 1972, pp. 45-47). Given then the presumed weakness of formal instruction in the affective

domain, the consistent evidence of the importance of the family, and peer groups, whether at a school or work, I conclude that a positive attitude toward work is not an appropriate and reasonable outcome for vocational education either in short- or long-term follow-up studies.

Reduced dropout rate as an outcome is presumed to be an indirect result of vocational instruction by enabling students to have educational experiences that are closer to their interests and have a more direct relationship to their "lives after school." Thus this outcome is presumed by most to be a reasonable one, which occurs without explicit and direct instructional time targeted to its attainment. Given the evidence of the relationship between such factors as ability level and educational attainment; familial factors such as father's educational attainment, mother's educational attainment (Bielby 1981, pp. 7-14), time at which delinquency occurs; the relationship between delinquency and dropping out (Bachman and O'Malley 1980, pp. 138-156); and the relationship of dropping out and number of siblings (Parnes and Rich 1980, pp. 162-174-175), vocational education seems not to be a very potent counterforce. Thus, reduced dropout rate is not an appropriate and reasonable outcome for vocational education.

Increased awareness of need for basic skills is the final outcome to be evaluated. This outcome is presumed to be a secondary, if not a tertiary objective of most vocational education and is an indirect consequence of instruction. The evidence on the emergence of awareness is very limited and must in large part be inferred from theories of motivation. The one theory of motivation considered here is the one presented by Katz and Kahn (1978, pp. 335-338). As applied to this outcome, its appropriateness would appear to rest upon whether these conditions prevail:

1. The students have an adequate level of ability.

2. The students value highly the occupational skills they expect to acquire if they are able to understand both written and verbal instructions.

3. The effort required to improve basic skills to the level required to understand the instruction is perceived by the students as feasible and commensurate with the reward of developing the occupational competencies or other related side benefits (e.g., being able to stay in the company of highly valued peers).

If the measure of awareness is a measure of perceptions rather than a measure of actual behavior, such as seeking out additional help in basic skills, awareness may be expected to

occur if the first condition exists. If behavioral changes are sought, these could be quite varied, contingent upon the particular conditions and degrees of valuing and effort that exist. Given adequate ability, low value on occupational skills, and perceived high effort required, one might predict dropping out, or continuation with very marginal performance rather than seeking help in basic skills. Thus, I conclude that increased awareness of need for basic academic skills has qualified acceptance as an appropriate and reasonable outcome for vocational education.

In brief, motivation for educational and occupational achievement, positive attitude toward work, and reduced dropout rate are not appropriate and reasonable outcomes for vocational education. Increased awareness of need for basic academic skills has qualified acceptance.

Summary and Conclusion

The evaluation standards employed in rendering judgments about the appropriateness and reasonableness of eighteen selected outcomes were these:

1. The more the explicit objectives and activities of vocational education are directly related to a particular outcome, the greater the likelihood of making a significant contribution to the outcome.

2. The more powerful vocational education is judged to be on the basis of the importance of other variables known to contribute, the greater the likelihood of a significant contribution to the outcome.

3. The shorter the lapse of time between the educational experience and the measurement for expected outcomes, the less likelihood that intervening events have modified, reversed, or cancelled out the consequences of vocational education.

The informaton in figure 5 summarizes the results of the evaluation for each objective. As can be noted, four of the eighteen objectives were accepted on all three criteria as appropriate and reasonable. Five were accepted within conditions specified. Nine were rejected on the basis of evidence that known forces other than vocational education are more powerful in the determination of specific outcomes.

Given the limited number of outcomes fully accepted (four), does this imply either the triviality or unimportance of vocational education? The four outcomes deemed appropriate are

FIGURE 5

SOCIOLOGICAL EVIDENCE
SUPPORTING VOCATIONAL EDUCATION OUTCOMES

Outcome	Accept Y	Accept N	Accept Q	Evidence: Citations
1. Awareness of need for basic skills			x	Katz and Kahn (1978, pp. 335-337)
2. Satisfactoriness to employers			x	Mortimer and Simmons (1978, pp. 440-443); Katz and Kahn (1978, p. 378)
3. Trained workers for labor force	x			Bachman and O'Malley (1980, p. 153); Blau and Duncan (1967, p. 403); Bielby (1981, pp. 7-14); Kamens (1981, pp. 111-126); Alexander and Eckland (1980, p. 42); Sewell and Hauser (1980)
4. Motivation for educational achievement		x		Alexander and Eckland (1980, p. 49); Gage (1978, p. 64); Spenner and Featherman (1978, pp. 339-395); Sewell and Hauser (1980, pp. 64-73); Kamens (1981, pp. 111-126); Bachman and O'Malley (1980, pp. 142-144); Bielby (1981, p. 11); Kerckhoff (1972, p. 55)
5. Placement in job related training			x	Blau and Duncan (1967, pp. 169-175); Bachman and O'Malley (1980, pp. 138, 146, 155-156); Miller and Form (1980, pp. 245-246); Kamens (1981, pp. 111-126)
6. Acquisition useful occupational skills	x			Bachman and O'Malley (1980, p. 153); Blau and Duncan (1967, p. 403); Bielby (1981, pp. 7-14); Kamens (1981, pp. 111-126); Alexander and Eckland (1980, p. 42)
7. Positive attitude toward work		x		Katz and Kahn (1978, pp. 377-378); Mortimer and Simmons (1978, pp. 440-443); Miller and Form (1980, pp. 198-200); Kerckhoff (1972)
8. Increased productivity		x		Miller and Form (1980, pp. 186-187, 407, 690, 696-698); Katz and Kahn (1978, pp. 394, 424)
9. Safe work habits and techniques			x	Katz and Kahn (1978, p. 588); Miller and Form (1980, pp. 186-187); Kamens (1981, pp. 111-126); Bachman and O'Malley (1980, p. 153)

FIGURE 5

SOCIOLOGICAL EVIDENCE (continued)

Outcome	Accept Y	Accept N	Accept Q	Evidence: Citations
10. Increased earnings		x		Kalleberg and Sorenson (1979, pp. 351-379); Wright and Perrone (1977, pp. 32-55); Stolzenberg (1975, pp. 645-665); Sorenson and Tuma (1981, pp. 67-79); Bachman and O'Malley (1980, p. 137); Sewell and Hauser (1980, p. 74)
11. Enhanced leadership capabilities		x		Wright and Hyman (1958); Hyman and Wright (1971); Foner (1979, p. 227); Smith (1975, pp. 247-260)
12. Upgraded occupational competencies	x			Bachman and O'Malley (1980, p. 153); Blau and Duncan (1967, p. 403); Bielby (1981, pp. 7-14); Kamens (1981, pp. 111-126); Alexander and Eckland (1980, p. 42)
13. Potential for entrepreneurship			x	Bachman and O'Malley (1980, p. 153); Miller and Form (1980, pp. 245-246)
14. Enhanced job advancement		x		Kanter and Brinkerhoff (1981, p. 339); Miller and Form (1980, pp. 237, 626-627); Katz and Kahn (1978, pp. 349-353); Blau and Duncan (1967, pp. 169-175); Spenner and Featherman (1978, p. 407); Stolzenberg (1975, pp. 545-665); Kalleberg and Sorenson (1979, pp. 351-379)
15. Increased job satisfaction		x		Campbell et al. (1976, pp. 299-302); Shepard (1977, p. 8); Katz and Kahn (1978, p. 364); Miller and Form (1980, pp. 133, 198, 698); Levitan and Johnston (1973, p. 71); Bachman and O'Malley (1980, p. 137)
16. Improved quality of work		x		Miller and Form (1980, p. 407)
17. Retrained workers	x			Bachman and O'Malley (1980, p. 153); Blau and Duncan (1967, p. 403); Bielby (1981, pp. 7-14); Kamens (1981, pp. 111-126); Alexander and Eckland (1980, p. 42)
18. Reduced dropout rate		x		Bachman and O'Malley (1980, pp. 138-156); Bielby (1981, pp. 7-14); Barnes and Rich (1980, pp. 162, 174-175)

Y = Yes
N = No
Q = Qualified Acceptance

in and of themselves of considerable importance both for the individual and for the society at large. Furthermore, education in its totality as already noted is quite significant among other known and measured variables in influencing human behavior, both in terms of work life patterns and nonwork areas (Hyman, Wright, and Reed 1975; Hyman and Wright 1971).

Supporting the importance of teaching, even given the evidence of its seeming ineffectiveness, Gage (1978, pp. 64-65) has this to say:

> The preinstructional variables against which teaching variables have been pitted represent the outcome of years of prior experience and development. During these years, pupil ability and achievement have been influenced not only by genetic variables of much debated importance. They have also been influenced by dozens of powerful "teachers" in the form of parents, friends, neighborhoods, mass media, and even persons called teachers. . . . The influence of those years of prior "teaching" by teachers who have had more prolonged and intimate opportunities to exert their influence must be regarded as prior links in a long chain of cause and effect relationship, the last link represents "pupil achievement."

That box becomes the first link representing "preinstructional variables" in the next round of teacher influence on the pupil. Because the effects are cumulative, each new "teacher" adds to the effect of preceding "teachers." So the last teacher in the chain cannot be expected to have an effect nearly equal to the total effect of all his or her predecessors. Yet it is that last teacher whose effect is studied in any investigation of the importance of teaching variables" (pp. 64-65).

Hyman and Wright (1971), having investigated the effect of education on values, cite Cremin's formulation, which is particularly pertinent to this analysis. "It is not that schooling lacks potency. It is rather that the potency of schooling must be seen in relation to the potency of other experience" (Hyman and Wright 1971, p. 67). Hyman and Wright conclude their study by noting that "given these challenging conditions, the enduring effects of education on values are all the more impressive" (1971, p. 67).

Vocational education, by successfully demonstrating high quality and consistent attainment of the four outcomes accepted, makes a significant contribution to that totality of education that was the focus of Hyman's and Wright's inquiry.

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QUESTIONS AND ANSWERS ON
"AN EVALUATION OF OUTCOMES USED TO ASSESS
THE EFFICACY OF VOCATIONAL EDUCATION:
A SOCIOLOGICAL PERSPECTIVE"

Question: In your paper you indicate that the shorter the lapse of time between the intervention and the measurement of the expected outcomes, the greater the likelihood is that the intervention will make an effect. Are you suggesting that we should only evaluate the short term outcomes and forget the long-term outcomes?

Malone: In effect I am. In going through the mass of materials, I found that the longer the lapse of time, the greater the probability that there will be stronger and more significant intervening events in the individual's life than those from vocational education instruction. I'm fully cognizant of the fact that one could challenge this on a number of grounds, but by the same token it interested me that I had formulated those criteria before going into the research literature. I then found, for example, with the work of Blau and Duncan and other studies, that they tended to find that the longer the lapse of time the less significant was the influence. So even though I had formulated it on purely logical grounds and my basic knowledge of causation in human behavior, I found that, in this instance, academic sense and common sense came together beautifully.

Question: If you relate that to outcome number five, placement in job related training, which most often is done six months after completion, why do you list that as questionable?

Malone: I listed it as qualified. I don't see that as a conflict. You will recall that the qualification that I gave was that placement be a very specific objective of the program, and that there were personnel and resources allocated to achieve it. The reason I gave it a qualified was that the employment opportunities are variable with the particular locality. To the extent that you make that an outcome required of vocational education programs, you are, in essence, saying one of two things: (1) either the availability of jobs is under the control of vocational education, therefore, they are responsible; or (2) vocational educators have--or the capability exists, not just for vocational educators, but within our society--to be

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NOTE: The questions were generated by buzz groups at the Working Conference. Dr. Malone's responses to the questions were transcribed and edited.

sufficiently foresighted in forecasting an adequte match between labor force needs at the beginning of a two-year program that will persist and exist two years later. Anyone would have to have very serious reservations about that capability's even existing in our society, for any specialized group. Therefore, why should vocational educators be expected to have capabilities that generally aren't really very good anywhere, at this time?

Question: Your paper is extremely comprehensive and it appears to allude more to general education than to vocationa education specifically. One of the premises in the paper is that the more education one has, the more the person is entitled to higher earnings, higher prestige, and so forth. Does this imply that vocational education limits opportunities? Also, is there a great difference between graduates of secondary and postsecondary vocational education in the opportunities available for them?

Malone: Relative to the possiblity of vocational education's actually truncating opportunities, I would say that for one to say that, is to assume that if every individual graduated from college, then every individual would then be able to experience the benefits that presently accrue to college graduates. The latest statistic that I have found is that 25 percent of the labor force is constituted of people with baccalaureate degrees. I think that most of you would acknowledge that if everybody had a college education, you would still need plumbers; you would still need construction workers and individuals with many other skills. The reward system would not necessarily continue for college graduates. Therefore, I don't think that vocational education necessarily truncates. Indeed, I think it is quite possible that there are some youths, by virtue of their starting point in life, who are enabled to go further in life because of vocational education.

The other point that I heard at the table, but may not have been in your question, is, "How do you move from education generally, to draw inferences about vocational education specifically?" My logic is as follows: If in fact you find that all of education contributes a relatively modest proportion of the explanation the variance for certain kinds of outcomes, how then can one make a strong case for vocational education, which lasts for two years, either at the secondary or the postsecondary level, having a much more powerful impact? Time is a common denominator here. However, there are four outcomes that I believe are very appropriate and very reasonable for vocational education. Those are outcomes that are explicitly linked to what I presume to be primary objectives of the effort of vocational education. In addition, the opportunity to acquire those competencies tends not to be so systematically attended to by any

other agency of our society. With reference to the question regarding postsecondary and secondary, I think a basic consideration here is what you are you going to compare with it. If you try to compare the graduates of postsecondary vocational programs, would you compare them with secondary school vocational graduates, or would you compare them with graduates of associate degree programs in non- vocational areas? Having an associate degree, irrespective of the area in which it was attained, would probably be the significantly related factor to additional occupational attainment. You would find modest and perhaps very few if any differences between your vocational postsecondary program graduate and the associate degree holder.

Question: Would the acquisition of increased skill levels lend support for the outcome of increased productivity?

Malone: Part of the problem may be in how we are defining productivity. I'm thinking of productivity as measurably different for vocational education graduates and nonvocational education graduates within the same line of work. If individuals are doing the same job, they've had to acquire the necessary skill to do that job, therefore, that's one consideration.

In the research that I looked at, I became convinced that there were so many other factors that impinge on the productivity level of a work group, or of an organization, that the way in which the individual worker went about the jobs and performed them is an important component. When one considers the total range of variables that are causing various levels of productivity, performance is so minimal that it would be very difficult to find measurable, discernible differences. Those are the two bases upon which I reject the outcome of increased productivity.

Question: Could you expand beyond what is in your paper about the relationship of accountability to competency-based education?

Malone: I see competency based education as very explicit in the objectives that are to be attained in terms of student outcomes and student competency. I see competency based education as a very precise delineation of the components of skills that should be acquired and having the capacity to test the students at each step along the way to see whether or not they do have a certain level of skill. Therefore, I would see competency based education as being, potentially, a fairly effective and efficient tool in demonstrating the one outcome that I've said is a very legitimate outcome for vocational education, namely the acquisition of specific occupational skills.

Question: Of the five outcomes that you have listed as qualified, what would one need to do to move those either into the "yes" or the "no" category? Would there be changes of wording that you would make? Or what coul be done to get those out of the qualified column into the "yes" or "no"?

Malone: I don't think that I would be supportive of having a carte blanche "yes" or "no" attached to those outcomes. I would view those given the qualified acceptance as a group of outcomes that may indeed be appropriate and reasonable, given the circumstances I have specified. So you might say that my qualified acceptance could be interpreted as saying, "Yes, but only under certain conditions."

Question: If some of the outcome statements were reworded would it make a difference in whether or not they were accepted?

Malone: One of the things that I was troubled by was, for example, "How do you enhance potential?" Enhanced leadership capabilities are one thing; capabilities really imply potential. But one could expect these capabilities to be evident, given certain sets of circumstances. I do think the word potential is quite problematic. I didn't want to deal with that, so I just simply skipped potential and treated it as if it were enhanced leadership capability. One reason I provided the information about participation in voluntary associations was that one of the manifestations of enhanced leadership capabilities presumably was the determination of how many vocational education graduates were chairpersons of their various prestigious boards of education and other community organizations. It seemed to me that participation in voluntary associations was germane to consideration of that as one possible outcome.

Question: Are there other outcomes that vocational education could be responsible for . . . that are not part of these eighteen, in your point of view?

Malone: I tend to go along with the viewpoint that vocational education has the potential of being a very effective educational process. When I became part of the vocational education community, I was naive enough to think that there was a rather generally accepted differentiation between training and education, that vocational education was indeed attending to the whole person, while training was narrowly specialized. I learned rather quickly that people didn't share this definition with me. They got very angry with me when I thought they ought to be concerned with whether students were in fact reading better, and whether the teacher was teaching in such a way as to help

students read better even when it would not necessarily slow down the process of teaching the vocational skill; indeed when it might make the difference between the student's understanding the material and not understanding it. What we should be saying is that we have a large garden variety of students and that we would like them to grow as much as they can grow. There are different educational processes that enable some to grow more effectively than if they went through another educational process. I realize that may not be quite consonant with some federal concerns, but after all a lot of state and local money goes into vocational education.

OUTCOMES FOR VOCATIONAL EDUCATION: ECONOMIC PERSPECTIVES

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> It should be emphasized that the research results reported do not constitute, and should not be read as, an assessment of the effectiveness of either secondary or postsecondary vocational education programs. They are too limited--by both the data available for research and the difficulty of the research problem--to attribute outcomes, both economic and noneconomic, to particular educational experiences. (NIE 1981, p. VII-22)

Introduction

If vocational education is effective, what outcomes should we expect to observe? The objective of this paper is to examine eighteen preselected outcomes that have been associated with exposure to vocational education, focusing on the consistency of each stated outcome with the role(s) economic theory assigns to vocational education, and on the relative importance each outcome is accorded by the evidence accumulated to date.

At the outset, it is important to ask five questions:

- Why do we want to identify outcomes of vocational education and to estimate the relative importance of these outcomes (i.e., what are the intended uses of this information)?
- What actual criteria do we propose to examine as purported measures of vocational education outcomes?
- How will this measurement be conducted (i.e., what measurement standard(s) will be adopted)?
- Where will the observations for this estimation procedure be taken (i.e., what is the appropriate unit of analysis, given the questions already posed)?
- When should these observations be made; (i.e., what is the appropriate temporal definition to adopt)?

Interdependencies among these five issues, which have received far too little attention to date, render most of our accumulated "knowledge" unacceptable as evidence of vocational education's effectiveness.

The paper is divided into four parts. First, general observations about the importance of the five questions posed above are offered. The second section is devoted to a brief statement of four different theories that economists have proposed to explain observed labor market outcomes. Based on these conceptual foundations, the third section is devoted to an examination of relevant evidence about vocational education outcomes. The final section summarizes one economist's conclusions about what we know about vocational education outcomes.

Why, What, How, Where, and When?

Choosing a Unit of Analysis

Five years ago, after more than a decade of exploring the uses made of evaluation research, I concluded that a major purpose for devoting resources to evaluation is apparently to be able to say we are doing it! Since then, I have decided that a major reason for this limited relevance for decision making is our failure to consider beforehand what actions might potentially be taken on the basis of possible findings.

Consider the following example. Most evaluations of vocational education outcomes have compared events subsequent to exit from a categorical classification "vocational education" with the experiences of those who exited from "general education" programs. Recently, Rob Meyer (1982) has demonstrated how deficient this classification practice is:

> Almost all students take courses in vocational education, and individuals take widely varying amounts of courses in both academic and vocational subjects. There is no standard academic, general, or vocational program that is characterized by a set number of vocational and academic courses. In fact, many students in the academic program take more vocational coursework than do vocational students. (p. 16)

What is appropriate unit of analysis? This question cannot be answered without prior consideration of the "why?" query. One important use of outcomes information is to convince members of Congress that federal funding of vocational education is a worthwhile investment. Two related uses of outcomes information are to inform State legislators and local officials about vocational education's relative merit. Is the appropriate unit of analysis the same for each of these three important uses of outcomes

information? No. In fact, given any one of the three levels of decision making, the appropriate unit of analysis will vary, depending upon the specific question that is posed. For example, consider the following questions:

- How effective are vocational education activities that are currently funded through federal reimbursement?
- What consequences would be expected to follow a substantial decrease (increase) in federal funding of vocational education activities?
- How target efficient are current earmarking provisions for the dedication of federal reimbursement to selected target populations (i.e., are these funds actually reserved for the support of services offered only to members of the designated groups)?
- How efficiently do the states and local school districts manage the federal funds made available to them for vocational education purposes?

The point is this: Even though each of these questions addresses an aspect of federal funding of vocational education, a different unit of analysis is called for in each case. In the first instance, tunnel vision is permitted, focusing attention on present program mixes and levels. In addition, only average effectiveness need be estimated. The second question, however, involves hypothetical circumstances: If the level of federal reimbursement were substantially smaller (larger), what changes in program mix and/or level would be likely to occur? Now we are talking about marginal, as well as average outcomes; that is, it is important to know who would be affected by the decrease (increase). The third question requires data at a sufficient level of detail to permit the analyst to explore possible substitution effects; meaning the possibility that state and local officials withdraw their resources from (or fail to allocate resources to these activities because the federal funds are earmarked for these purposes. If substitution of this type occurs, the target efficiency of the federal fundings is obviously diminished in a net resource availability sense. The fourth question has nothing to do with effectiveness, a point that is not frequently appreciated. Efficiency refers to the least-cost provision of services--in this case, vocational education. The pertinent question here is: How can we get the most vocational education for our federal investment? This question can be explored and debated without devoting any attention at all to the question: How effective, in outcomes terms, is the vocational education offered through these auspices? It is in this context that the authors of NIE's The Vocational Education Study: The Final

Report concluded that "(t)he best promise of securing results likely to be useful for improving programs and decision making on program offerings is to evaluate the ways programs are planned and operated" (National Institute of Education 1981, p. xxxviii). Of course, within this management context, it is necessary to choose one or more definitions of vocational education programs (i.e., multiple units of observation may still be chosen).

It is apparent from the preceding discussion that the selection of relevant outcomes--and indeed whether outcomes are even pertinent--is dependent, in part, upon the uses that are to be made of the analysis. Since eighteen preselected outcomes are explored in section three, no further development of the connection between "why?" and "what?" questions is presented here.

Selecting a Measurement Standard

The choice of a measurement standard is obviously a crucial determinant of the reliability to be associated with reported estimates of vocational education outcomes. Unfortunately, few of the ultimate users of evaluation studies are sophisticated enough in their understanding of statistical estimating procedures to assess the precision and stability of outcomes estimates presented to them. (The ability and willingness of evaluators to promote user understanding is also questionable.) A dramatic example of the vulnerability of evaluation consumers is found in two surveys of education production function estimates, which reached completely opposite conclusions, even though well over half of the studies surveyed were common to both examinations (Barnow 1979, pp. 314-315). The reason for the discrepancy is that one survey used statistical significance of individual coefficients as a basis for importance, while the other survey adopted a percentage of variance-explained criterion for importance.

Geographic and Temporal Considerations

The "where?" and "when?" questions can be introduced at this point, because decisions with respect to each affect the robustness, or range of applicability, of reported outcomes estimates. It will be seen in section three that omitted variables severely limit the relevance of national survey-based estimates of vocational education outcomes reported to date. Furthermore, evidence is presented in section three that the timing of recording outcomes information is a critical determinant of the stability of derived effectiveness estimates.

It is only a slight overstatement to conclude that we have been recording the wrong data, at the wrong time(s), using inappropriate units of observation, and then subjecting these data to

inappropriate testing procedures, because of a pervasive failure to decide beforehand what anyone might do with a plausible range of possible estimates of vocational education outcomes.

On this pessimistic note, we move directly into a brief exposition of the role(s) economic theory assigns to vocational education.

Vocational Education and Labor Market Outcomes: Four Economic Perspectives

The data that are available to address any contemporary issue are an artifact of some historical reason for collecting the information, one that bears no necessary relationship to the current issue. Therefore, there is no particular reason to expect available data to be well suited to defining today's issues. More bluntly, there is a "data availability--policy relevance dilemma," which is, in some respects, unavoidable, but about which we should always be aware.

Accuracy, or precision of information, is meaningful only in reference to a specific purpose. Undefined demands for "better" or "more current" data at "more detailed" levels for "smaller" geographical areas are likely to be counterproductive. The Vocational Education Act, as amended, reflects certain assumptions about education and labor market institutions and practices. Some observers of these institutions and the behavior of individuals have concluded that fundamental changes have occurred in the employment relationship, changes that are not currently reflected in the conventional wisdom about how government action can improve individual employment opportunities and earnings. The purpose of this section is to indicate how diverse extant theories of labor market behavior are and to relate these differences to data requirements, through a reexamination of the five questions posed in the preceding section.

The four theories about labor market institutions and behavior, whose merits economists continue to debate, are--

- the human capital approach,
- the signaling approach,
- the job competition approach, and
- the segmented labor market approach.

Each of these theories assigns a different role to vocational education, and the outcomes estimation process that would logically accompany each of the four differs from the others. This is the reason that a conceptual foray must precede plunging into the evidence about these outcomes.

The Human Capital Approach

This theory asserts that individual productivity differences can be reduced to a common denominator that allows us to array individuals along a continuum according to their embodiment of greater or lesser amounts of "human capital." What is this common denominator? Roughly, it is cognitive ability or skill, the ability to do something with a greater or lesser degree of facility. It is assumed that this is what matters in the employer's decision whether to hire, how much to pay, when and whether to train on the job, and whether eventually to promote an employee.

How is this human capital embodiment measured? Usually, it is by time units of education (training) completed--to capture pre-labor market entry productivity development--and time units of work experience to reflect on-the-job training acquired. There is no direct method for measuring the quantity of human productive capacity. Even the strongest advocates of the usefulness of human capital analysis acknowledge its simplistic characterization of a complex relationship. They admit that time spent in school is not synonymous with the absorption of learning. Furthermore, it is recognized that individual abilities to market the skills acquired through learning differ.

Just as there is no direct measure of quantity of embodied human productive capacity, there is no direct measure of its price. This distinction is important for estimating vocational education outcomes, because it draws attention to two very different ways in which individual employment opportunity and earnings might be improved:

- To the extent that individual productive potential is important in employer hiring and promotion decisions, the quantity of human capital embodiment matters, and
- given any level of embodied productive potential, the earnings received for applying this potential can be altered within a limited range.

A fundamental rationale for government funding of vocational education is an assumption that skill is an important missing ingredient barring the fulfillment of individual opportunity to secure higher earnings.

A number of anomalies have been cited, which create skepticism in some quarters that this simple human capital approach should remain a mainstay of the country's human resources investment policy. Race- and sex-based differences in occupational status and earnings, which remain after the most careful controls for education and training exposure, at least raise further

questions about the universal importance of skill as a primary determinant of subsequent employment experience. To date, the complexities of sorting out the independent influences of skill embodiment and personal correlates of the decision to of skill embodiment and personal correlates of the decision to enter one type of education program, rather than another, have not been resolved. And inconsistencies have been discovered between what employers say their hiring and promotion criteria are and what their actual practices reveal. (Evidence regarding each of these assertions is cited in the next section.)

The Signaling Approach

In the absence of a direct way to measure individual productive potential, an alternative view of the possible role of prelabor market entry skill development has arisen. While individual productivity per se remains unknown, marketable information about productive potential may still be produced in a vocational education setting.

Each of us embodies measurable characteristics, some of which can be modified, while others are unalterable. Individual predicted productivity (actual productivity is not known beforehand) is a function of each employer's weighting of these characteristics. In other words, the employer is uncertain about the individual's productive potential, so the individual is assessed on the basis of previous group experience, or some proxy thereof. If the employer has no basis for comparing an individual with previous experience, the uncertainty factor looms larger in the decision process. To the extent that an individual is compared with a low average productivity group, the candidate's likelihood of success is diminished. If the attribute(s) upon which the classification is made are unalterable, nothing can be done individually to change the employer's assessment of the characteristic(s). (However, society can, through statutory administrative and attitudinal actions, affect this decision making process.)

The potential role for vocational education in this conceptualization is fundamentally different from that which is associated with the human capital approach. Here exhibition of a vocational education signal may enhance, or tarnish, an individual's relative ranking by an employer for reasons that have little, or in the extreme nothing, to do with skill improvements that occurred through those auspices. For example, a student's decision to enter a vocational program may be interpreted by an employer as evidence of that person's commitment to a generic type of work. A second example is found in the frequent observation that it is unclear whether prestigious training institutions actually offer greater skill enhancement than lesser known schools, or whether the exercise of greater admission selectivity predetermines relatively greater success of terminees.

The signaling approach provides an intuitively appealing story: Without having to produce a precise measure of what vocational education really does to a person's productive potential, it explains why participation in this activity might be used as a predictor of future productivity. (It also explains, by the way, why the acquisition of certification may be diminishing in importance as a guarantee of entree into productive employment: As more applicants exhibit a given attribute to employers, this characteristic diminishes in importance as a distinguishing signal by which to differentiate among candidates. Again, in the extreme, if we were ever to achieve the goal of ensuring that everyone receives a high school diploma, this generic accomplishment would serve no screening function whatsoever.)

The Job Competition Approach

The key to this theory is an assumption that most applicable skills are learned on the job. Prior to job entry, individuals are mostly bidding for training opportunities. Productivity is held to reside in the job, not in the individual. Earnings are tied to the job held, not directly to personal productive potential.

Here individuals are arrayed along a continuum in the order of their relative attractiveness to employers, which, in turn, depends upon those characteristics that convey an impression of expected relative hiring and training costs. At the same time, there is a set of factors that determines which and how many job opportunites are made available. (Nothing more is said about this crucial issue, but it is important to recognize that this "demand side" issue determines how far along the queue of aspirants the available pool of job opportunities will reach.)

The signaling story offered no explanation for the observed nonuniformities in employers' hiring, retention, and promotion criteria. In the job competition approach, there is no supply of trained labor, in the traditional sense of that term. The smaller the difference in expected training cost among applicants, the greater is the employer's autonomy to introduce subjective preferences. The more alike job aspirants are in their objective attributes, the more important becomes employer discretionary power to impose subjective judgments.

Obviously, the fundamental question that this job competition theory poses to vocational educators is: How does exposure to your program(s) contribute to reducing relative hiring and/or training costs that will be borne by employers? Again, there are many possible ways in which the relative attractiveness of enrollees in vocational education programs might be enhanced from a prospective employer's standpoint, and only some of these possibilities require direct skill development.

Is there a fundamental difference between the job competition story's characterization of expected relative hiring and training costs and the human capital story's concept of differential embodied productivity? Or, are these simply semantic nuances? Are most skills learned on the job? And, regardless of the answer given to this question, must an important proportion of skills be acquired in a joint learning-production setting? Is it important to recognize interdependencies among co-workers in a substantial enough segment of production to warrant downplaying the concept of individual productive potential, independent of a specific application of that potential? Each of these questions is a topic of hotly contested debate at the present time, and no summary observations are tendered here.

The Segmented Labor Market Approach

A final important dimension of the recent institutional work that has been done characterizes the labor market in terms of segments. Many of you have undoubtedly heard the terms primary and secondary labor markets, or dual labor markets. In this view, there are "good" jobs and "bad" jobs. The primary labor market is characterized by the presence of well-developed internal labor markets (i.e., an administrative unit, within which the allocation of labor is governed by a set of administrative rules and procedures), which are at least partially insulated from external market forces. While not necessarily high paying, these jobs are usually seen as offering stability and codified rules for industrial grievance handling. In contrast, the secondary labor market is seen as offering little reward for individual productive potential, limited opportunity to move out of this sector, pervasive underemployment, and frequently capricious supervisory relationships. Given these characteristics, the secondary labor market also exhibits high turnover and low wages. Interactive forces between this secondary job environment and the behavior of incumbents in those jobs are emphasized.

From this perspective, the secondary sector is viewed as an integral part of the economy, which absorbs many of the insecurities of volatile economic forces, forces that would otherwise affect the primary sector, whose incumbents have exercised their power to create advantages that they will not willingly share. Indeed, the degree of elaboration of internal labor market features in the primary sector is, in part, a result of incumbent fears of losing advantages already gained or anticipated. Rules are established to allocate scarce earning opportunities.

Many issues of importance to vocational educators flow from this characterization of segmentation and incumbent insecurity. Customary ways of doing things ultimately constrain responsiveness to changing economic forces. As long as efficient economic

conditions do not change radically, the acceptability of customary practices presents no conflict. Custom develops as an adaptive or imitative process, which is facilitated by work group continuity and homogeneity. New procedures and new group members dilute this customary group behavior, at least temporarily. Important formal and informal aspects of any job assignment must often be learned from co-workers. If these colleagues are insecure about their own employment and promotion prospects, this can be expected to be reflected in their willingness to share the essential information that is necessary to succeed (and, in some cases, to survive).

Among the important consequences for vocational education outcomes, if this characterization of labor market institutions and the behavior of incumbent employees is accurate, are the following:

- The time dependence of labor market success subsequent to exit from a vocational education program is of critical importance because of the association between incumbent security and "outsider" opportunities to apply embodied skills and to learn new skills.

- The relative importance of objective skill acquisition as a determinant of subsequent economic success is expected to be uneven, with other personal characteristics (e.g., sex, race and interpersonal relations) influencing outcomes, independent of embodied productive potential.

- Skill acquisition and employment opportunity are, to some extent, simultaneously determined; that is skill embodiment is accepted as a factor in initial access probabilities, but access is necessary to acquire further skills. Vocational education's role in enhancing access to subsequent learning opportunities is of great interest.

The Four Theories: A Final Statement

The purpose of this extended exposition of four quite different approaches to understanding the dynamics of labor market institutions and individual behavior has been to reveal the unsettled nature of economists' disciplinary perspective on the actual and potential role(s) for vocational education in promoting individual and societal well-being.

Returning, briefly, to the five questions that were set forth in the preceding section, it is now apparent that the unit

of analysis chosen and the specific outcomes criteria selected are likely to be different, depending upon which of the four conceptualizations one accepts. Concern about outcomes' estimated precision and stability is also expected to be a function, in part, of the theoretical persuasion exhibited. And, perhaps most important of all, the initiating inquiry itself, the "why?" question, is heavily influenced, if not determined, by the preconceptions one brings to the task.

What questions, then, have economists asked about vocational education outcomes? What evidence has been introduced? And how reliable are the conclusions reached? It is to these matters that we turn now, in section three.

Questions, Evidence and Conclusions: Economic Perspectives

It was asserted in the preceding section that the questions asked by those of different theoretical persuasions direct the respective explorations along different paths from the very outset. Let me now illustrate the importance of this point. Bowles and Gintis asked, "How can we best understand the evidently critical relationship between education and the capitalist economy?" (Bowles and Gintis 1976, p. 10). And they concluded:

> Indeed, we believe that the evidence strongly supports the thesis that the vocational education movement was less a response to the specific job training needs of the rapidly expanding corporate sector than an accommodation of a previously elite educational institution--the high school--to the changing needs of reproducing the class structure. Particularly important in this respect was the use of the ideology of vocationalism to justify a tracking system which would separate and stratify young people loosely according to race, ethnic origins, and class backgrounds. (p. 194)

This theme is chosen for introductory purposes because inquiry of this type cannot be transformed into the eighteen preselected outcomes that are to be examined in the following pages. (Interested readers are urged to read Gordon, Edwards, and Reich 1982; La Belle and Verhine 1975; and Grubb 1979, for "revisionist" interpretations; and Ravitch 1979, as one example of the traditionalist response.)

At the opposite extreme of a continuum of economic approaches, we find Psacharopoulos asking: "How does the profitability of investment in education compare with the profitability of investment in physical capital?" And, "(W)hat contribution has investment in education made to economic growth in different

countries?" (Psacharopoulos 1973, p. 3). This rate-of-return approach does not provide any insights about (1) how education produces the estimated return, (2) whether this rate of return is the highest that can be achieved with the given educational inputs, or (3) how this rate of return would be affected by an increase (decrease) in the scale of education offerings. In terms of the five questions posed at the outset, this approach offers little management guidance. (See Michael Carbine's chapter in Lecht 1974, pp. 70-95, for a presentation that is supportive of this cost-benefit approach.)

An alternative approach is to attempt to specify an input-output relationship, or a production function:

> Knowledge of the technical relationships between inputs and outputs is only the first step in using the production function for evaluation purposes. The input prices can be used to determine how a given level of output can be produced at minimum cost. If the output prices are known as well, the optimum level of output can be determined in addition to the appropriate combination of inputs. Thus a production function approach can provide richer information than the cost-benefit approach. (Barnow 1979, p. 299)

The educational production function literature has been subjected to extraordinary methodological scrutiny (Heim and Perl 1974; Barnow 1979, pp. 300-310; Meyer 1982, which cites Hanushek's (1981) recent review of this literature). Heim and Perl urge caution:

> It is important to remember that analyses of this sort are going to omit some dimensions of input and measure others only in broad aggregate. These difficulties should not be a basis for rejecting the conclusions of these analyses. In evaluating an analysis, two critical questions should be asked: are the dimensions of input omitted from the analysis systematically and significantly related to those included and are the variables included sufficiently disaggregated for policy purposes? (Heim and Perl 1974, p. 4)

In other words, specification errors (failing to specify properly which inputs are related to the outcomes that are of interest) and measurement errors (choosing inappropriate proxies for the true influencing factor) bar us from achieving unbiased estimates of the input-output relationship. Biased estimates of the effect of those input factors that are controllable by vocational educators, for example, offer a poor basis upon which to make administrative decisions. It is for this reason that the proper unit of analysis must be chosen, paying attention to the

type(s) of decision that might be influenced by the analysis.

Barnow (1979) offers a clear comparison of the production function approaches that are available: estimating the effects of specified inputs on (1) direct outputs, on the one hand, or (2) indirect outputs, on the other hand. Barnow (1979) asserts that "(t)he direct outputs of a training program are the skills and attitudes produced by the program that are embodied in the trainees. The indirect or ultimate outputs of a program are those changes that occur in variables of interest that are intermediated by the labor market and other institutions" (Barnow 1979, pp. 318-319). (Note that it is possible, in principle, for the direct output to be unrelated to skill enhancement or attitudinal change a point that Barnow (1979) fails to make.)

Estimation of the direct output of skills requires competency-based measurement techniques (Taggart 1981, pp. 321-332). Estimations of the indirect employment and earnings outcomes of vocational education require adoption of a control group, which permits the analyst to gauge the hypothethical experience the trained persons would have exhibited in the absence of an exposure to vocational education. (It is recognized that there are other assessment techniques; Cf., Averch, Carrall, Donaldson, Kiesling, and Pincus 1972; Pettman 1973).

At issue, regardless of the indirect estimation technique that is ultimately selected, is a proper specification of the earnings function, if earnings enhancement is accepted as an appropriate indirect outcome of vocational education. It is clear that economists have a long way to go in this specification and estimation process (Hanushek 1981; Gustman and Steinmeier 1980; and Meyer 1982). Hanushek (1981), for example, concludes:

> (E)stimated rates of return for years of schooling, particulary in regression estimates considering other individual differences appear very unstable: Changes in sample, changes in time periods, and changes in precise model specifications yield enormous changes in estimated rates of return. Attempts to improve these models by adding more detailed measures of individuals (say, ability or school quality) or characteristics of labor markets have not narrowed the coefficient differences significantly.
>
> Interpretive difficulties with these investigations arise from two sources. First, the conceptual models involve purely supply-side behavior of individuals, but the empirical models are actually complicated reducedform relationships that combine supply and deman forces. Second, there is little consensus on the appropriate specification of the underlying structural relationships. (Hanushek 1981, p. 240)

Richard Freeman recently asked, "Can we take disadvantaged workers and readily improve their earnings capacity, getting them in better jobs?" (Freeman 1981, p. 128). He concludes:

> The question cannot be answered with cross-section regression analysis comparing the earnings of persons with the same measured attributes in different sectors, because such comparisons involve different persons, one of whom may have superior unobserved attributes. Longitudinal studies of earnings provide some evidence but are subject to alternative interpretations, also because of questions about the unmeasured characteristics of persons who shift sectors. . . .
>
> Does the wage determination process reward personal attributes, education, and age less in the secondary sector than in the primary sector.... At present, our best conclusion is that the wage determination process differs between markets in which few workers are low paid and those in which many workers are disadvantaged. (Freeman 1981, pp. 128-129)

The important point to be made here, based on the Heim and Perl (1974), Barnow (1979), Hanushek (1981), and Freeman (1981) conclusions, is that estimates of the relative importance of any particular factor, such as vocational education, are highly sensitive to model specification and estimating technique.

What can be said about the correlates of worker productivity? (See, for example, Leach 1981) In a paper which is of cricial importance to an assessment of vocational education outcomes, Charles Brown (1982) recently observed that:

> The relationship between job performance and individual attributes known by the employer at time of hiring is an important topic among economists. . . .
>
> The "individual characteristic" most often studied by economists (and often studied by others) is education. Attempts to use within firm data to test whether more-educated individuals are more productive have produced very mixed results. . . .
>
> While within-firm studies of worker performance can potentially provide valuable evidence on the question of whether individuals with more education (or more of some other characteristics) are more productive, they suffer from a potentially serious statistical flaw. . . . If firms prefer more-educated applicants, less-educated

> applicants who are hired are likely to have "compensating virtues" known to the hirer but often notto the researcher. Thus, comparing performance of more- and less-educated workers understates the edge of the typical (that is, randomly selected) more-educated worker over the typical less-educated worker. Moreover, the bias is more severe when the employer overestimates the importance of education. (Brown 1982, pp. 178-180)

Again, the omitted variables issue has arisen. Brown's (1982) conclusion can be anticipated:

> Ordinary least squares estimates of the determinants of employee performance are likely to give biased estimates of the importance of the various factors which firms use in hiring. The magnitude of this bias, however, depends on the selection process of the firm, being most important when the firm accurately judges unrecorded attributes of applicants which are in fact important determinants of later performance. Consequently, the magnitude of such biases will vary from one context to another--as will the determinants of performance themselves. (Brown 1982, p. 192)

So a decision is called for: Should we proceed to enumerate the litany of outcomes estimates, which economists have shown no hesitation in offering the unsuspecting consumer of evaluation results; or, should we simply assert that the methodological weaknesses are so universal and damaging that to continue would amount to complicity in the crime? A middle ground, of sorts, is adopted. The best of the most recent evaluative literature authored by economists is presented, because it demonstrates the professional commitment of some of those within the discipline to resolve the methodological problems, thereby contributing to our understanding of vocational education outcomes.

The review of specific evidence about vocational education outcomes that follows is limited to--

- o increased earnings,
- o placement in a training-related job, and
- o enhanced job advancement.

Increased Earnings

Pat Brenner writing in a National Commission for Employment Policy publication has reviewed the available evidence on increased earnings accruing to participants in secondary level vocational education (1981, pp. 10-39) Based on Meyer's (1982) analyses, which are examined in greater detail later in this section, The NCEP (1981) study concludes that:

... there are initial large gains to women taking commercial courses, but that these gains decline overtime....

Course work in home economics was associated with a significant decrease in income throughout the period 1972 to 1979, for all women, but especially for black and Hispanic women.

Unfortunately, the data were too weak to provide meaningful results about the outcome for women of taking vocational education programs that are predominantly male.

The regression analysis for males, again controlling for a series of socioeconomic and labor market variables, failed to show any positive return to vocational education, pooled over all kinds of vocational courses. In regressions conducted separately for white, black, and Hispanic males, the coefficients were sometimes positive, sometimes negative, but not statistically significant.

Meyer was able to compare the effects of vocational education taken in area vocational schools with that taken in comprehensive high schools. Enrollment in an area vocational school did seem to improve the likelihood of positive economic gains for males (but not for females), although the gains were small. (pp. 29-34)

When read in the context of the preceding comments about model specification and estimation sensitivity, these are fragile conclusions, indeed. As we will see, Meyer (1982) has done a masterful job with the data available (from the 1972 Longitudinal Study of Education Effects), but these data are not well suited to correct the deficiencies noted by Hanushek (1981) and Brown (1982).

Grasso and Shea's (1979) analysis obviously deserves mention because it provided the basic input to The National Institute of Education's (1980) Interim Report on The Vocational Education Study. However, Gustman and Steinmeier (1980), and Meyer (1982), have offered good reasons to downplay their results. Grasso and Shea (1979) reported that:

With respect to wages and earnings, findings (based largely on the NLS) differed by sex. Among males, enrollment in an occupational program during high school was on average unrelated to rate of pay and to annual earnings. (It should be noted, however, that analysis by specialty area, such as welding and automobile

repair, was not possible.) Indeed, some evidence suggests that vocational graduates enjoyed slower rates of growth in wages over time than did general graduates. Among the females, business and office graduated were found to enjoy higher rates of pay and annual earnings than were general graduates.

Postsecondary training appeared to produce benefits in wages and earnings for high school graduates of either sex (and, significantly, for high school dropouts, too) (p. 183).

These results are cited here only because they provide an opportunity to illustrate how susceptible evaluation results are to misuse. Daymont and Rumberger (1982), and Meyer (1982) have demonstrated how weak the designation "vocational education graduate" is for analytical purposes. And Meyer (1982) has demonstrated the time sensitivity of earnings comparisons. Indeed, Gustman and Steinmeier (1980) question the appropriateness of earnings comparisons themselves. What, then, are we to make of the outcomes findings reported in the NIE (1981) study's Final Report? There reanalysis of national data sets by The Huron Institute is reported:

What, in sum, has been learned about the outcomes of participation in a secondary vocational program? Evidence from prior research and reanalysis of national survey data indicate fairly consistently that females who graduate from business and office programs--the majority of females in occupationally specific secondary vocational education programs--fare better in the labor market than female graduates of the general curriculum.

Evidence of differences between male graduates of secondary vocational and general programs without postsecondary education is not as strong as that for female graduates. (VII-20 and 21)

Again, knowing that the earnings streams are time sensitive renders these conclusions, based on national survey data collected within four years of program exit, of limited interest.

This is an appropriate point, too, to reiterate why theory is so important to proper outcomes assessment. If female graduates from business and office programs fare better than female graduates of the general curriculum, is this "good" or "bad"? If this program provides a skill that is differentially rewarded in a fluid (i.e., open, or accessible) marketplace, it may be judged desirable. However, if young women who enter this curriculum have narrower self-development horizons than their sisters who choose other routes, this initial advantage may be masking a

longer-term truncation of opportunity. (Recall that Meyer's analysis suggests that even this initial earnings advantage diminishes quite rapidly.) Again the question that precipitates the analysis is critical, as is the driving force(s) behind the data collection process.

Meyer's name has been mentioned throughout this paper up to this point. Why is his work so special? Because he has paid closer attention to the model specification and estimation issues than anyone else to date. This is not to say that he has resolved the specification and estimation problems that others have warned us about. But he has shown, again, the sensitivity of results to the unique approach taken.

In addition to the results that Meyer (1982) reports for those who graduated only from high school (NCEP 1981, above), he offers the following imprctant observation:

> (T)he analysis should be extended to individuals in other labor markets, for example, the market for colleg graduates or graduates of postsecondary vocational schools. The overall evaluation of vocational education should depend on its effects in <u>all</u> labor markets. (Meyer 1982)

Meyer subsequently examined the relationships among post-secondary plans, participation in vocational education, and post-secondary choices. It is important to understand these relationships to estimate the <u>indirect</u> effects of vocational education on earnings, through its intermediate effect on postsecondary choice. Meyer (1982) concludes:

> Except for Hispanic men, we find that after controlling for personal and family characteristics and parental schooling desires, high school vocational education does not increase the likelihood of enrollment in post-secondary vocational school. For women, in fact, there is some evidence of substitutability of high school and postsecondary vocational school, controlling for these other factors.
>
> Although we cannot be sure that sufficient control variables have been included in the equations presented in this section, we conclude that vocational education has an important effect on the choice of postsecondary activity, particularly on the decision to attend college. (p. 21)

This <u>option</u> value of a curricular decision is well known, but too often overlooked in the literature. One aspect of this was mentioned in the suggestion that young women who enter

business and office programs may thereby signal their willingness to narrow the range of subsequent employment. (The same could be said, of course, about selected other choices.) An analogy, which the author recently saw in the summer 1982 issue of The Occupational Outlook Quarterly, is found in the unusually high proportion of graduates from postsecondary education programs who are actually teaching, in relation to the proportion of graduates from other baccalaureate programs who have entered "directly related" occupations. Is this differential attributable to positive or negative factors? Do education majors have narrower (i.e., more well defined) career objectives; or are graduates from these programs more limited in their opportunties?

The potential importance of measurement error is exemplified by comparing the results discussed up to this point, which were derived from analyses of the National Longitudinal Study of 1972 High School Seniors data, with results reported on the basis of analysis of the same data, but which used the following definition of high school training: "Any specialized training intended to prepare for immediate employment upon leaving school (for example auto mechanics, secretarial skills, or nurses, aide)" (Meyer and Wise 1982, p. 298).

Meyer and Wise (1982) reported:

> We could find no measure of high school vocational or industrial training that was significantly related to employment or wage rates after graduation. The variable included in the results. . .is high school training for a particular job. We assumed that if any high school training mattered, this training should. It doesn't. We experimented with many other measures of job related training. . . .
>
> We found none that was related to subsequent employment. This cannot be interpreted to mean that no training matters; but it does indicate that none of the training in current high school curriculums, or at leas that training systematically measured in the survey, is related to labor force participation after high school.
>
> While traditional measures of academic success are positively related to wage rates, as are attributes associated with actual work experience in high school, high school training, which is presumably closely directed to the development of job skills, is not.
>
> If high school training contributes to the development of job-related skills, they are at least offset by the loss in traditional academic training related to job performance. (pp. 307 and 313)

The importance of proper model specification is further driven home by Meyer and Wise (1982):

> Hours of work while in high school are very strongly related to weeks worked in particular and also to wage rates in each of the four years followinng graduation. The evidence suggests that this is due to individual attributes associated with working while in high school; these attributes may or may not be developed by this experience. Together with the effect on the hourly wage suggests to us that training only, without the attributes associated with work effort or doing well in school, will not increase one's chances in the labor force (p. 327)
>
> More detailed investigation could reveal particular types of students for whom high school vocational training does enhance subsequent labor force experiences (p. 328).

Frank Levy, (1982) commenting on Meyer and Wise, emphasizes the importance of distinguishing between the skill-building hypothesis about the role of work experience while in school as a determinanat of subsequent earnings, and the self-selection hypothesis, which gives no credit to skill development per se. Levy then offers a third hypothesis: "Hours worked in high school may say something about people who can get work. ...Many of these attributes, while uncorrelated with motivation, may be equally unobservable in a typical data tape".

Up to this point, we have examined the best of the most recent economic research on the topic of the earnings impact of high school vocational education. All of these studies have explored <u>average</u> effects. There <u>is</u> an alternative approach, which to my knowledge has not been adopted in analyzing vocational education impacts on subsequent earnings.

> The existence of unusually effective schools is an important question for educational policy. If exceptional schools do exist, they may be replicable elsewhere; if they do not, we may need to consider radical changes in the educational system. . . . Methodologically, like many previous studies, this study utilized regression analysis of achievement data, but with a completely different emphasis. Since we were concerned with outliers rather than central tendencies, we focused not on the regression line and its coefficients, but on the residuals from that line. (Klitgaard and Hall 1973, p. v)

<u>If</u> we are confident that non vocational education effects on earnings can be accounted for by variables that are included,

then the remaining residual variance can be attributed to vocational education's effect. Obviously, given what has been said up to this point, we cannot be confident that these non-vocational education effects can be controlled for adequately. The point remains: If one sets out to estimate average effects, they will not reveal outliers. The question which is asked limits the range of answers that can be expected.

It is concluded that no reliable evidence about the earnings impact of vocational education is available. Substantial efforts are underway at this time to remedy this situation, but the data sets available for this purpose are too limited to offer hope that definitive results will be forthcoming. Nevertheless, substantial progress has been made on the model specification front (see, in particular Meyer and Wise 1982, and comments by Levy and Chamberlain 1982, Daymont and Rumberger 1982, and Gustman's 1982).

Finally, under the earnings subheading, should we even be looking for earnings difference between vocational graduates and some proxy for what their earnings streams would have looked like in the absence of the training? Gustman and Steinmeier (1980) point out that

> (m)any studies of vocational training programs seek to establish the differential between the discounted wage streams of vocational and other program graduates....
>
> The wage differential found by these studies measures the value of the vocational training program to the marginal enrollee in the program. In other words, it answers the question: If the program were to be cut back (enlarged) by one position, what would happen to the wages of that person dropped from (added to) the program? More importantly, it does <u>not</u> answer the question: What is the effect of the vocational training program on the wages paid to the $\bar{N}$ graduates of both programs? (p. 10)

All of the results reported up to this point apply to young trainees, who are entering the labor market, on a full-time basis for the first time. Fredland and Little (1980) have examined similar issues for the National Longitudinal Survey cohort: males ages forty-five through fifty-nine, in 1966. They conclude that

> (t)aken together, the results for the vocational education variables suggest that (1) vocational training is specific rather than general, and (2) the contribution of vocational training is, at least in part, attributable to training itself and not solely reflective of

> superior abilities of those who selected training.... If the effect of investment in vocational training is in fact job-specific, it would be highly desirable to disaggregate by type of training received and by occupation. Unfortunately, the extent to which disaggregation is possible for this study is limited.... (T)ype of training is reported in six broad categories.
>
> Of interest here is the long-term contribution to earnings of vocational training. The long-term contribution is important in itself for policy. In addition, a study of the long-run impact can ignore temporary effects and cross-over points that obscure results for short-run studies.

However,

> The results for civilian training are suggestive of long-run returns to vocational training, but they are a less direct test than are the military results because the civilian training observed here is presumably of diverse vintage. Some of the training may have preceded the observation of earnings by as little as one year (pp. 60, 64, 65)

We leave this assessment of the earnings outcome with a keen appreciation for the importance of the five questions posed at the beginning of the paper. The morass of technical issues that confronts those who aspire to use the results of the many analyses that have been performed indicates how primitive the state of the art really is.

Placement Upon Program Completion

Brenner (National Commission for Employment Policy 1981, pp. 21, and 22) cites the results of a case study undertaken in Worcester, Massachusetts, by Olszewski and Moss, to investigate the extent to which small firms might rely more heavily upon graduates of high school vocational education programs, because these firms have a more limited internal training capability than do larger firms. (Brenner cautions that "one cannot make statements about the national effects of vocational education from a single case study.")

> The Worcester study finds that high school curriculum does influence employment outcomes--in both the initial (1969) and later (1977) survey, men and women were found to be employed in different occupations and industries than were their nonvocational counterparts.... (N)o significant difference was found among the graduates of

the different curricula in the firm size of employment. (National Commission for Employment Policy 1981, pp. 21, 22)

The relevance of training-related placement is, of course, dependent upon which of the four theories of the link between vocational education and labor market outcomes one accepts. Placement is a transaction, with no direct well-being connotations at all. If skill enhancement is an important direct outcome of vocational education, and if the immediate use of these skills is an important intermediate conduit to higher earnings, and if an appropriate classification of training-relatedness is available (cf., Golladay and Wulfsberg 1981, pp. 209-216), then this outcome is interesting. However, many other possible ties between vocational education and labor market outcomes have been mentioned up to this point, which do not require training-related placement in any way. It is quite possible that evidence of a high training-related placement rate is, at the same time, indicating a limited range of applicability of the skills learned. This may be desirable, but then again, it may not be.

Enhanced Job Advancement

Initial placement has no direct well-being connotations, but subsequent advancement certainly does. What role does vocational training have in determining upgrading opportunities? Using data from the 1/1000 sample of the 1970 Census, measuring occupational mobility between 1965 and 1970; and the National Longitudinal Survey male cohorts, measuring mobility between 1966 and 1969, Leigh concludes:

> Across age groups and samples, generally positive results were obtained for the various categories of formal vocational training available in the data sets. Using the Census sample, training in business and office work and in engineering-science technician programs was generally found to have relatively large impacts on occupational advancement. Training in trades and crafts was also observed to positively affect the occupational upgrading of blue-collar and service workers. For the NLS samples, postschool training programs provided by business colleges and technical institutes and by employers generally appear to have the strongest impact on occupational progression . . . . (T)he evidence reported in this chapter is not consistent with the existence of a systematic racial differential favoring whites in the impact of formal vocational training. (Leigh 1978, p. 110)

Selesnick (in Doeringer 1981, pp. 55-79) examines surveys of participation in industrial training programs, and concludes that

> (d)espite all the talk about the new importance of "human resource development," training is still emphasized by only a small group of large employers who operate the most prestigious and successful business establishments. And even these employers are reaching only a small proportion of their workers with training. Many employers fail to train not only because of economic and financial barriers, but also because of lack of understanding of the need for and value of training programs in their operations and in their relations with employees. In addition, many small- and medium-sized firms lack training expertise.

On the basis of the studies of which I am aware, it is virtually impossible to document a connection between vocational education and subsequent promotional experience. All of the model specification and estimation issues that were raised under the earnings outcome apply to this topic, too.

Only three, out of eighteen, outcomes of vocational education have been discussed here: earnings, training-related placement, and upgrading. The anecdotal evidence of which I am aware, pertaining to the other outcomes, does not warrant mention. Furthermore, I am unaware of evidence that meets the standards set forth in the preceding pages and addresses the "target group" topics (i.e., the aged, disadvantaged, handicapped, minorities, and women). (See, however, Shaffer, West, and Stefens 1982)

Wouldn't some evidence, however unreliable, be better than no evidence? No. One of the major barriers to effective evaluation is persistence in offering unacceptable evidence to unaware consumers. In Thurow's words: "To make vocational education programs successful, it is necessary to ascertain where the conventional model of vocational education is correct and where it is incorrect" (Thurow 1979, p. 326).

So, where do we go from here? Pannell points the way in her conclusion that

> (b)ecause the education and training system is so diverse, it provides the opportunity for testing and analyzing various approaches to common policy programs. Whether we are interested in deciding if it is more efficient to finance education through subsidies to individuals, or to training institutions, or if we wish to identify the effective division of training responsibility between schools and workplaces, or if we seek

better ways to equalize employment opportunity--the system itself embodies a wide range of useful experiences. (in Doeringer and Vermeulen 1981, p. 65)

We are back, to the precipitating questions: why, what, how, where, and when? What questions should we ask, toward which objectives? What standards of evidence should we establish? How should we proceed to satisfy these standards? This section is concluded with brief observations about the other fifteen preselected outcomes, with an eye to the economist's conceptual approaches.

o Awareness of need for basic academic skills: This appears to be an exceedingly complex issue. Measurement of the awareness itself (in absolute or relative terms? and, if relative, with respect to what basis for comparison?) and the response to this awareness must be accomplished.

o Satisfactoriness to employers: Why should vocational education completors exhibit differentially high ratings? With respect to whom? How will we disentangle attributes that are independent of the vocational program per se from those that are internal to that program (the self-selection issue)?

o Trained workers for labor market needs: There is an extensive literature that examines the appropriateness of this as a goal (see Shackett and Stevens 1982). The basic point is that substitutability among types of individual attributes is not well understood. Nonuniformities abound in employer behavior. The very definition of labor market "need" is fraught with ambiguity. (Also see Grubb 1979; Thurow 1979.)

o Motivation for educational and occupational achievement: Presumably, motivation flows from perceived opportunity with and without vocational education. Since the actual labor market consequences of vocational education are so poorly understood, it is difficult to imagine that motivation can be driven by accurate insight. Therefore, to the extent that achievement motivation is enhanced through vocational education or on the basis of a unit of analysis that is acceptable for this purpose, but not for evaluative uses.

o Acquisition of useful occupational skills: While the field of competency testing is not without controversy, the acquisition of skills can be ascertained. Whether these skills are "useful" is somewhat more subjective. To whom?

o Positive attitude toward work: There is likely to be a serious self-selection problem here. Those who don't have positive attitudes are less likely to be working.

o Increased productivity: How is this to be measured, independent of co-worker and organizational affiliation influences? Is productivity embodied in each individual, to be carried around from place to place, or is it embodied in each unique job setting, to be accessed by whoever wins incumbency?

o Development of safe work habits and techniques: The simultaneity problem arises here. There are many correlates of safety: alertness, attitude, physical dexterity, etc. Some of these may also be correlates of the decision to participate in a vocational education program.

o Enhanced leadership capabilities: The question of absolute versus differential accomplishment arises here. Should those who complete vocational education programs be expected to exhibit relatively greater leadership qualities? If so, why? And, how will the self-selection bias be controlled for here?

o Upgraded occupational competencies: I do not understand how this differs from "acquisition of useful occupational skills."

o Increased potential for entrepreneurship: I see no reason why this should be considered to be a desirable outcome of vocational education, any more than for any other preparatory program.

o Increased job satisfaction: Assuming that the self-selection problems can be resolved, this should be measurable.

o Improved quality of work: Relative to what standard of comparison? Again, self-selection bias will be a confounding factor.

o Retrained workers: This also overlaps with the upgraded occupational competencies outcome.

o Reduced dropout rate: This may well be the most difficult outcome of all from which to tease out an independent vocational effect.

Conclusions

Several readers of a draft manuscript of this paper expressed concern that the economics discipline must offer a more positive assessment of the appropriateness of at least some of the eighteen outcomes examined than is reflected in my review of the evidence. Part of this confusion about the economic evidence results from a failure to distinguish between acceptance of an outcome as appropriate and interpretation of the existing

evidence bearing on that outcome. I reiterate that it is not the economists' task to choose appropriate outcomes; it is their task to examine the evidence that is pertinent to outcomes chosen by others. And economists would differ among ourselves about the relevance of specific outcomes because they do not agree on the theoretical explanations for observed labor market behavior and earnings patterns.

President Reagan will sign the Job Training Partnership Act of 1982 within hours of this writing. This legislation accepts earnings improvement as an effectiveness measure. Vocational education, at both the secondary and postsecondary levels, and in both public and proprietary forms, has an important role to play in promoting this earnings improvement. Our expectations in this regard are not globally determined; that is, we cannot speak in a meaningful way about "vocational education" as a single uniform entity The role of each class, curricular program, institution, and school system is molded by historical factors, current funding levels, administrative personalities, and turf battles, which encompass many forces extending far beyond the narrow confines of efficient skill enhancement.

In "The States' Human Resource Development Role in Response to Potential Employment Growth and Emerging Occupations," I recently concluded that:

> I would expect to see even more creativity exhibited in cooperative arrangements involving public vocational schools, community colleges, proprietary institutions, and employers; arrangements in which the public/private distinction is blurred even more than it has been to date. At the same time, "holdouts" will remain, because incumbent insecurity among the administrative and instructional staffs at some public institutions will effectively bar acceptance of the types of partnerships exemplified. . . .

The appropriateness of outcomes for vocational education will be determined, in part, by citizens' impressions of this sector's role in promoting equitable opportunity for deserving individuals. The definitions of these words mean different things to each of us. This is why substantial ambiguity, of a functional type, must remain in the statement of appropriate outcomes.

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QUESTIONS AND ANSWERS
"ON OUTCOMES FOR VOCATIONAL EDUCATION:
ECONOMIC PERSPECTIVES"

Question: Could you expand on your comments concerning the conclusions that can be drawn from the vocational education earnings data?

Stevens: I can't answer that question in an extended way. I cite a number of empirical studies in the paper to point out that the models differ, the estimating techniques differ, and the criteria upon which the results are analyzed differ. What we do know from the statistical analyses that have been done is that there is absolutely no question that the relevant coefficients jump all over the place, depending upon what factors you have in a model and what factors you don't have in a model. What that means to me and to a number of other economists is that we cannot say with confidence that there is or is not an earnings impact. I can't tell you what the ideal model would be. There are non-economic factors, institutional labor market factors, and education factors that would be included. The problem is that the more factors we load into these models, the more difficult it becomes to say anything reasonable about any one of them. Most importantly, it depends on what question you want to answer. Again we come back to the unit of analysis: Why are we looking for an earnings impact? At what level are we looking for an earnings impact? What standard of measurement are we going to accept? For example, if the Congress decided that we would have to find a thousand-dollars a-year earnings difference between vocational education graduates and any other group five years after graduation, then we could set up a statistical investigation that would tell us whether that exists or not. Congress probably isn't interested in that amount of precision. Nobody has the proper model specification, and no one has laid out what the ideal data set should look like.

Question: Is it not true that you said in your paper that the district data, such as the data Borus is collecting, are inappropriate; or is your point that there are too many possible models to analyze the data?

Stevens: First, there are measurement errors, and there are omitted variable problems. We could get any group of five, ten, or thirty disagreements about what variables the model should

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NOTE: The questions were generated by buzz groups at the Working Conference. Dr. Stevens' responses to the questions were transcribed and edited.

include. Second, some people are human capital devotees of the most narrow sort. They will have more confidence in the use of the data you refer to, for example, then adherents from any of the other three schools of thought mentioned, because human capital devotees are more comfortable looking at a narrow range of influences. Others would discount such narrow approaches completely and would say you're simply not looking at the right thing. That's why I quoted Bowles and Gintis; the Marxist approach would come at the issue from a direction 180 degrees different.

Question: Such information would be practical if the vocational education budget were cut by 90 percent. Under such circumstances should vocational education admit only the best of the applicants, or should it admit the most needy?

Stevens: This is an issue that economists, as economists, aren't the appropriate people to answer. I indicated in the paper that it makes a big difference whether you are looking for average effects or marginal effects. It's one thing to say that programs, at the level and curricular mix we are now running them and with the current student constituency, have an estimated economic effect. It's a totally different matter to ask: If we had a different student body, what would the results be? Or, if we had 50 percent more, or 50 percent less federal funding, what would the results be? These are questions economists cannot answer very well at the present time because our models simply are not precise enough. I'm not aware of any other discipline's models that are precise enough to give us estimates of that sort either. Again, there is an important difference between asking what the average impact of what we are doing now is, versus what would happen if we made a dramatic increase or decrease.

Someone wants to know why I evaded the question: What would an economist say <u>are</u> the appropriate outcomes? I didn't commit myself because there is no single economic perspective. One's choice of appropriate outcomes depends very much upon which story is believed. In my own view, it is not for an economist to decide what is appropriate. I agree that we could go through each of the four stories and say, for example, if I believe in the human capital story, here are the outcomes I would expect to observe. Or, if I believe in the segmentation story, here are the outcomes I would expect to find. But, it would have to be four different lists, rather than one list.

Question: Recognizing that there is no one economic perspective, however, choosing any perspective you wish, can you answer the question, does vocational education make a difference economically?

Stevens: No, I can't answer that question. With respect to what? You see, that again comes back to the question, does it make an impact for handicapped students who are in particular programs? Yes, in some cases; no, in other cases. Why aren't there more handicapped students in a wider variety of programs? Can you give a global response? Why aren't women found in a broader spectrum of programs? Do the programs in which women are enrolled have an impact for those women? That's one question that I did answer with some confidence: The evidence does suggest that for traditional female programs, there is an earnings impact. The evidence suggests that for women who have been enrolled in home economics programs, their earnings decline over time, relative to other women. We could spend the rest of our time exploring the question: "Relative to what?" Should Congress cut all funding for home economics, on the of that evidence?

Question: Would an economist cut all funding for home economics?

Stevens: It's not for us, as economists, to say what the equity, efficiency, and effectiveness weightings should be. I have personal views about these weightings: I think we give far too little attention to the equity aspect. With regard to efficiency and effectiveness: These are totally different concepts. You can run a very efficient program that has an impact on nobody, or you can run a very inefficient program that has a very important impact on a lot of people. This is a very important distinction.

So, would I advise my elected representatives to take money out of home economics, on the basis of the earnings pattern cited? I would say that the evidence seems to be strongest in this one area. There does appear to be a negative earning effect. If the people in Congress want to put a lot of weight on that, I say that's their business. But let's come back to the business and office program issue. We don't have any longitudinal data to tell us whether women whose earnings are initially positively affected have fewer life options thereafter. If they do, then that early positive earnings impact is something that should be discounted. I would put more emphasis on subsequent opportunity than I would on early earnings impact.

Question: Are there any theories or models that would help vocational educators make decisions about high cost programs with low enrollments, versus low cost programs with high enrollments?

Stevens: Yes, twenty years or so of the cost-benefit analyses address those kinds of questions. We can cost out the programs, although we would get disagreement on what you should include as

costs: institutional costs, individual costs, social costs, community costs? And you can pose the same questions about the benefits. We can estimate cost-effectiveness, but again, I would ask: "What do the people in high-tech programs look like, and what do the people in the DE program look like?" Do we care about this? Almost anybody can guarantee a high economic impact. If vocational educators work closely with employers they can almost guarantee high-training related placement rates, job stability, and maybe even earnings improvement. That's not hard to do. Employment services have been doing that for years. Give them the rules, and they'll devise a way to satisfy those rules. Whatever rules are established (i.e., whatever the rewards are) is going to drive the system. You tell me what you want to look at and I'll tell you what that institution is going to be doing two years down the road.

Question: If we're not asking the right questions, what are some of the questions we should be asking, and how should we be asking them to get an economic perspective for what the outcomes of vocational education should be?

Stevens: At the federal level, I think target efficiency is a critical issue. That means: Are the federal monies going to serve only those whom you want to serve? That's an important question that an economist can investigate. Again the available data are limited, but certainly our theories tell us what we would want to look at. My reading of the available evidence suggests that federal money is not allocated in a target-efficient manner at all. The dollars do not go to serve the target groups that are specified in the legislation. There are a lot of reasons for that, some of which I'd have to take off my economist hat to explain. Again, we do not see the enumerated target groups as very widely represented in federally reimbursed programs. Something has gone wrong.

Question: Some of the current action in employment training programs seems to be moving towards the establishment of performance standards. It would seem that this means attention would be given to placement rates, earning rates, and measures of this type. Assuming that the Department of Labor is heavily influenced in their thinking by economists, why the two diverse points of view?

Stevens: There's no question that the Department of Labor is going down the performance standards route. It's going down that route, despite what I consider to be overwhelming evidence that attempts by the federal-state employment service system to establish such standards have, to date, been a failure. There's an

inertia, a feeling that performance standards will increase the efficiency of the affected programs. I would say that 90 percent of the economists who are housed in the Department of Labor are human capital devotees. They believe in a very tight connection between skill acquisition and improved employment opportunities. If you look at the articles I have cited--and I would urge you to try to find counterevidence--it is clear that our models aren't good enough to support performance standards. You have to be able to say: "Here's what matters." If you're going to establish standards, you have to be confident. I'm not aware of anybody who is confident that you can rely upon a formula to say: "OK, St. Louis, you're falling below the earnings improvement that would be expected of you, based on these four variables in this regression equation."

Question: But if you're a congressperson from Detroit, Michigan, I'm sure the placement rates are a very important issue in the evaluation of programs.

Stevens: Oh, sure. The fact of the matter is that I've had contracts with various units in the Department of Labor since 1977 to work on performance measurement issues. In Missouri, because we have a good working relationship with the Division of Employment Security, we have longitudinal files of earnings and demographic characteristics of the participants. It's one of the major data sets that are available in the United States to investigate these kinds of questions. I'm trying to improve these estimates, but I wouldn't allocate federal funds on the basis of them alone.

TECHNOLOGICAL DEVELOPMENTS AND SOCIAL CHANGE: SOME IMPLICATIONS FOR VOCATIONAL FUTURES IN EDUCATION

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Introduction

During most of the long human narrative that we call history, the outcomes for vocational education were reasonably safe to project. People were born in and died in more or less the same technological and social milieu. Whether in Julius Caesar's day or in George Washington's time, the general pace of change was slow. For generation after generation, people employed similar tools, used analogous beasts of burden, and brought similar weapons to their confrontations.

Of course there were innovations. Alexander the Great inherited from his father the newly devised Macedonian phalanx, a primitive predecessor of today's armoured divisions, with which to humble his foes. The English longbow began the decline of the armour-clad warrior at Crecy and Agincourt during the Hundred Years War, and gunpowder changed eighteenth century warfare. But on the whole, social changes and technological developments were glacial from generation to generation. The farmer's son became a husbandman, the cobbler's lad, a cobbler, and the smith's boy a blacksmith, too.

After the Industrial Revolution began in England--and then spread beyond its island shores--the tempo of change began to increase, and in a few centuries, there were more technological and vocational changes than in all previous millennia. As one result the opportunities and outcomes of vocational education began to go through massive mutations.

By 1900 it was possible for a forgotten prophet of portentous changes, John Elfreth Watkins, Jr., to write in great detail of a new century that would be rife with new vocations, demand new skills, and require profound and extensive changes in U.S. and global education.

Years before the Wright brothers lofted their rickety flying machine, Watkins (1900), curator of the U.S. National Museum in Washington, contended:

> Fleets of airships, hiding themselves . . . will float over cities, fortifications, camps or fleets. They will surprise foes below by hurling upon them deadly thunderbolts. These aerial war-ships will necessitate bomb-proof [shelters] . . . (unpaged).

Less ominous among his carefully reasoned predictions of eighty-three years ago were the following:

> Fast electric ships, crossing the ocean at more than a mile a minute, will go from New York to Liverpool in two days. The bodies of these [hydrofoil] ships will be built above the waves. They will be supported by runners, somewhat like those of a sleigh. These runners will be very buoyant. Upon their undersides will be apertures expelling jets of air. In this way a film of air will be kept between them and the water's surface. This film, together with the small surface of runners, will reduce friction against the waves to the smallest possible degree. Propellers . . . will screw themselves through both the water beneath and the air above . . . cabins artificially cooled will be entirely fireproof. (unpaged)

Even Watkins would be amazed today at the massive changes that have occurred just in the few decades that have passed since 1940. Writing in The Futurist magazine, biophysicist John Platt (1981) cites convincing evidence of the increasing velocity of change in our lives and points out that in the last forty years there have been more major biotechnical and social developments than in the past sixty centuries.

Consider the educational and vocational impact of the future which has crowded and complicated our recent lives with such innovations as these:

Jet power	Lasers
Saturn fly-bys	ICBMS
Nuclear power and weaponry	Moon landings
Endemic TV and telecommuncations	The pill
Artificial life forms	In vitro conceptions
Major organ transplants	Cloning of mammals
Robotics	Holography
In-utero surgery	Gene splicing
The microchip	

Such developments as those included in the sampling above have, for the most part, a direct bearing on the eighteen "outcomes attributed to vocational education" with which the National Center is concerned in the present project.

To summarize, change has been a part of life since humans began their ascent from forest and cave, but what is uniquely new in the twentieth century is the experimental nature of developments triggered by science and applied technology.

The "big question" with respect to tomorrow's vocational education is the question of what reasoned conjectures suggest

with respect to the future of the world of work in the U.S. The remainder of this paper is concerned with (1) the nature of the forces that have sown the present harvests of turbulence in virtually all parts of the globe, and (2) speculations about the probable influence of those forces on the "eighteen outcomes" attributed to vocational education.

Some Sources of Turbulence With Relevance for Vocational Educators

In the America of yesteryear, it was a common practice to conceive of "good" schools as the schools that already existed but with their problems removed. This point of view provided guidelines, for example, when Conant (1961) wrote of the American secondary school and subsequently contrasted the educational needs of slums and suburbs, and still later, of the implications of his work for teacher education. Typical (and at that time, appropriate) points that he made nearly a quarter century ago serve to illustrate the "improve-schools-by-removing-their problems" viewpoint. Today they sound like platitudes:

> The schools should be given the responsibility for educational and vocational guidance of youth after they leave school until age 21. This will require more money.
>
> Employment opportunities in the large cities must be promptly opened on a non-discriminatory basis. Because of the attitude of management and labor this can be done only through the use of federal funds. (p. 146)

Writings of the 1950s and 1960s, and the enormous investments in education sponsored by the Johnson administration--spending that scholarly opinion encouraged--were bold ones for the times but merely attempted to improve the status quo of many schools and involved little, if any, significant effort to create different schools or to seek a more relevant approach to education derived from probable future needs.

Developments of the late 1960s and of the 1970s finally began to challenge educators' assumptions that the same schooling that existed in the '50s--if lubricated by more local and federal monies--could solve many of our social and educational problems in the U.S. and carry us toward a truly Great Society. Furthermore, as the 1970s waxed and waned, a combination of catastrophies occurred. These included a war lost in Southeast Asia, the tragic deaths of Kent State University students, a president resigning in disgrace, an energy crisis deepened by extravagant use of energy and the OPEC embargo, inflation and growing debt, academic score decline, greater overseas industrial competition

from nations such as Japan and West Germany, mounting U.S.-U.S.S.R. tensions, and the Iranian hostage crisis. Their combined and cumulative effect convinced many Americans that what could go wrong would. Furthermore, to many citizens it seemed that a "normal" day had become one that was decidedly worse than yesterday but better than tomorrow would be! Gradually, in the course of the decade, it became apparent that the future-- along with a number of other social imperatives--was going to require different teaching and learning experiences rather than the traditional curriculum content of past decades.

As one outcome, a substantial challenge is facing present-day leaders in education! They are the ones confronted with a spectrum of some of the most urgent problems--to evolve in the entire century--as well as with some of the most important educational opportunities. And vocational education and guidance in particular, as the U.S. becomes more and more an information society with tertiary[1] jobs proliferating, is coming under great pressure to derive viable guidelines for the future.

With this preamble, attention is directed to ten sources of turbulence that promise to permeate society and its educational components.[2]

Competing Ideologies

One of the deep roots of the chain of crises in which our age seems to specialize is related to the disconcerting division of opinion regarding the desirable social, economic, and biospheric policies by which humans should choose to live. On the one hand are the proponents of frugal technologies, who seek recognition for (1) the limits to growth widely publicized following the 1972 Club of Rome report (Meadows 1972), (2) more social innovation, (3) more equitable distribution of the world's resources, and (4) voluntary simplicity in our life-styles, and similar social and econological transformations.[3]

Opponents of the "transformational" approach are likely at present to advocate "reindustrialization," that is, rebuilding the free enterprise system by investing large capital sums, concentrating on technolgical research and development, and creating a larger "economic pie" to increase material affluence, rather, than cutting the present economic pie into smaller slices.[4] Supporters of the two ideologies tend to be equally prestigious and more or less equally convincing. Detailed presentations of the two ideological postures, by the way, were made by Spekke (1975) and Marien (1982). Marien's dichotomy appears in figure 6.

Beyond doubt, the work places of the world and vocational education will be enormously influenced by what choices and

FIGURE 6

WHICH BASIC LONG-TERM MULTIFORD TREND?

	Post-Industrialism As Service Society	Post-Industrialism As Self-Reliant Society
	Growth of a high-technology, materially affluent service or information society, as described by Herman Kahn's "Basic Long-Term Multifold Trend" (The Futurist, June 1979 and various books by Kahn and Hudson Institute staff).	Movement toward a more decentralized and ecologically-oriented society, addressing the full range of human needs; essentially, a reversal or modification of the long-term trend to complex, depersonalized systems
1. Culture	Increasingly sensate culture (empirical, secular, pragmatic, hedonistic); recently, an almost complete decline of the sacred	Greater spirituality, with cultural movement toward a synthesis of spiritual and secular, "rational" and "non-rational," Eastern and Western traditions
2. Science and Technology	Accumulation of scientific and technological knowledge	Industrial era paradigms underlying much "knowledge" questioned, as is reductionist trivia; more use of holistic methods to cope with complexity
3. Technological Change	Institutionalization of technological change especially research, development, innovation, and diffusion	Institutionalization of technology assessment; more emphasis on appropriate technologies and calculation of total costs
4. Education and Professions	Increasing role of bourgeois, bureaucratic, "meritocratic" elites; increasing literacy and education for all	Increasing emphasis on self-help, participation, and questioning of professionals; growing stress on learning needs and ignorance
5. Defense	Increasing military capability of Western cultures, and recent diffusion of military technology to non-Western cultures	Increased efforts to reverse the trend to militarism in all cultures; development of global peace-keeping structures and arms control agreements
6. Impact of Western Culture	Increasing of world dominated or greatly influenced by Western culture	Increasing effort to limit domination of Western culture and allow suvival of indigenous cultures
7. Material Affluence	Increasing material affluence	Decreasing material affluence as costs of over-development exceed benefits; broader quality-of-life measures developed and employed
8. World Population	Increasing rate of world population growth, until recently	Decreasing rate of world population growth
9. Urbanization	Urbanization, urban sprawl, and growth of megalopolitan areas and rural areas with urban amenities	Declining urbanization in rich nations and growth of non-metro areas relative to metro areas; in poor nations, efforts to stem growth of rural-urban migration
10. Environment	Increasing recent attention to macro-environmental issues	Environmental costs included in new and more holistic measures of "progress" and "growth"
11. Work Force	Decreasing importance of primary and, recently, secondary occupations; soon a decline in tertiary occupations and emphasis on advanced quartenary occupations	Stability or decline in service sector; more emphasis on self-reliance, self-service, parttim employment, job sharing, small farms partly self-sufficient homesteads; new occupational categories necessitated
12. Goals and Methods	Emphasis on "progress" and future-oriented thinking, discussion, and planning; social engineering	Emphasis on new human needs-oriented definition of "progress"; serious consideration of preferred alternative futures replaces forecasting
13. Pace of Change	Increasing universality of this multifold trend and increasing tempo of change in all of the above	Increasing universality of this multifold trend and increasing tempo of change in all of the above

SOURCE: Marien 1982, p. 23

compromises are made between the conflicting ideologies. The decisions reached will determine whether we move toward (1) a high-growth- high-equality option, (2) a high-growth- low-equality choices, (3) a low-growth- high-equality decision, or (4) a low-growth- low-equality option. Equally important: to what extent in the future will our choices and our behavior be directed, disciplined, or determined by the demands imposed by the biosphere?[5]

Problems of Governance

In part because of the historical linkages between the government and vocational education, the burgeoning problems of governing ourselves have become of enhanced importance where we contemplate our eighteen future outcomes. In recent years, as a result of our problems of governance, one could almost smell society's insulation burning in Washington, D.C. and London, in Warsaw and Moscow. At the same time the pages of history were stained again and again by warfare in El Salvador, Afghanistan, Lebanon, and the Falklands. These developments bring up the question of what steps can we take in U.S. democracy to cope with the complexity of reaching wise governmental policy decisions in a period of incredibly rapid change.

When Abraham Lincoln was assassinated, Queen Victoria did not learn about it until ten days later. Now responsibilities and problems such as those enumerated create what may go down in history as an "age of escalation"; one in which events transpire so rapidly that, instead of a ten-day lag in learning about events, newscasts often advise the audience of what will be said in a president's or in a prime minister's speech hours or days before it is given.

In addition to the speed with which change occurs and the "instant decisions" that sometimes are required, problems of governance that threaten us include mounting deficits, a national debt that passed the trillion mark[6] in 1981, and self-interest and single issue pressure groups. In Time (1982, p. 54), Canadian Prime Minister Pierre Trudeau is quoted as saying, "We seem to be moving from crisis to catastrophe." Governing bodies, as they survey rising costs, debt, inflations, and the mounting expense of the entitlement programs into which they are braided, may be obliged to accept the conclusion that policies reflecting some injustices may be perferable to fiscal collapse and ruin! Clearly, various dilemmas of governance will continue to be sources of national and international turmoil for the foreseeable future.

Rising Public Aspirations Turning to Frustrations

During recent years in the developed nations of Europe and in the U.S., people began to assume that they would enjoy an

ever-improving standard of living. In addition to pay raises, they began to expect more and more social welfare programs funded by the government: pensions, medical and unemployment coverage, and low-interest college loans.[7] The likelihood at present is that many persons have expected and taken for granted certain material goods and benefits that may not be there in the late 1980s and 1990s. This situation is an obvious source of social turbulence, especially if, as Caldwell (1981) put it, "For the world of the West, there is the possibility that both personal freedom and welfare may have reached a peak, or at least a plateau, after more than 200 years of progress."[8] Should this occur, Zimbardo (1980) concludes, there will be profound structural changes in society, and the frustration of great expectations may lead to widespread cynicism.

Economist Lester Thurow (1980), in The Zero-Sum Society, makes an interesting point about frustrated aspirations. We can solve virtually all of our problems, he says, if we can just decide who the losers are going to be.

Tensions Existing Between the Industrialzed "North" and the Less Developed "South"[9]

A great deal of the world's present tension and turmoil can be expected to increase during the declining years of this century. The malaise will increase as the developing nations of the South work and struggle not just for a better economic deal but for a new economic order.

The blood of many U.S. citizens is so rich with the concept of equality that elitism, and sometimes even unique excellence, are suspect. This egalitarianism predisposes many Americans to support, at least in theory, the need to ensure a greater measure of material well-being for the have-less and have-not nations. However, the consequences for the U.S. work place--for both capital and labor--are not always clearly understood. Consider the following statement from the World Watch Institute (1979).

> A few years ago Ward and Dubos estimated that a U.S. child in a lifetime would consume 500 kilos of iron, copper, cement, aluminum, and the like for every one kilogram consumed by a child in a mud hut village in India. . . .
>
> With about 5 percent of the worlds' population Americans absorb some 30 percent of the Gross World Product to maintain their present lifestyles. . . .
>
> A report from World Watch pointed out that of the 306 million automobiles in the world in 1979, approximately

half were licensed by the 225,000,000 people in the U.S.--nearly one car for every two people. The remaining 150 million autos were shared by some four billion earthlings--and of the total, the Americans, Canadians, British, Germans and French owned all but 15 percent of the world's auto cars.

I emphasize these three illustrations of uneven consumption in the industrialized North--and especially in the U.S.--to make the point that any significant effort to redistribute equably the education, the technology, and the affluence of the North among the world's more than 4 billion humans probably would cause massive decline in affluence and a riotous tumult in the industrialized nations, since the developed countries would be the big losers.[10] Indeed, the possible impact of such a "new economic order" on the U.S. work place beggars description. The situation is further complicated by the strain placed on the West's economy by the competition from low-cost, high-quality products from such places as Taiwan, Hong Kong, South Korea, Singapore, and Japan.

Sophisticated Weaponry

Knowledge, like good firewood, needs to be seasoned before it reaches its prime. Unfortunately for the purpose of global tranquillity, the development of sophisticated weapons, from Kalashnikov rifles to nuclear warheads, has outstripped our wisdom as to how to control their proliferation and use.

Although it is not generally recognized, the production of weapons has an insidious influence on the world of work in at least two ways. In one sense persons producing armaments are "unemployed," in that they produce goods that do not serve global needs. Second, earnings in the corporate world are, in a sense, partly dependent on the sale of weapons--particularly during a time of massive unemployment.[11] Let me elaborate.

In 1980 weapons exported by the U.S. grossed $17 billion; by Russia, $13 billion[12]; by France, $8 billion. West Germany passed France in its 1981 sales, and total world sales are well over $100 billion, with Third World purchases up a staggering 43 percent in less than two years.[13] In a time of wide-ranging hunger and severe malnutrition, it is particularly distressing to note that the money spent annually on arms transfers in the early 1980's was approximately the same as that spent on global food transfers.

And why are nations in danger of being "hooked" economically on weapon sales? Because according to the Bureau of Labor Statistics, every billion dollars in arms exports directly supports some 50,000 jobs! Saudi Arabian arms contracts alone, as

of 1981, presumably will have provided 112,000 jobs in the U.S.! As a possible result, at a time of high unemployment and of misemployment, trying to argue for de-escalation of the arms race is about as difficult as trying to sell the idea of chastity to the patrons of a bordello!

At the moment, in view of the transhemispheric battles raging as of the summer of 1982, we must redouble our efforts to seek a new, sane alternative blueprint to replace the present one which is causing the international arms race to metastasize so rapidly.

Population surges as sources of turmoil. According to a widely respected scholar, Garrett Hardin (1980), there are approximately 220,000 additional mouths to feed each day. Expressed in another way, every fortnight the population of a Chicago is added to the planet's load of humans. The scramble for a decent level of existence is steadily increasing as a result. The increasing rate of population increase is startling. Consider these estimates:

- In 10,000 B.C., the total global population was about 12 million.
- It probably was not until the 1860s or 1870s that the first billion mark was reached.
- By 1974 or 1975 there were 4 billion people spread over the world. About 5 percent of all the people who had ever lived were alive in 1975....
- Almost half of the babies who arrive each day are born in developing countries with a limited ability to nourish them....
- In the high birthrate country of Mexico as of 1980 about half of the population was under sixteen years of "age--a statistic suggesting that the potential cohort of young parents will sustain population increases for decades despite falling birthrates.
- Early in the twenty-first century we can expect a world population of over 6 billion people.

The impact of population on the vocational field almost inevitably will be enormous, both with respect to the changing size and composition of the work force and with regard to possible unemployment, exacerbated by technology and uncertainty as to what skills will be in greatest demand a decade or two hence.

Pollution and resource depletion. So much has been written about pollution and dwindling resources since Rachel Carson's The

Silent Spring and Barry Commoner's The Closing Circle were published in the 1960s that it is probably needless to elaborate on these twin causes of turbulence. Readers seeking additional information will find Lester R. Brown's publication, Building a Sustainable Society, and Duane Elgin's Voluntary Simplicity invaluable sources of up-to-date information and opinion.

Suffice it to say that the likelihood of resources such as oil and grain being used as economic or political weapons will create economic and social problems that will spill into the vocational arena.

The information economy: telecommunications and other media. The U.S. is the first nation to be almost totally permeated by technology, including its electronic subcomponents such as the microchip! Western Europe is, however, trailing close behind. Since I recently have written elsewhere of "The Silicon Age and Education" (Shane 1982), the closing paragraphs of this first section merely suggest some of our challenges as the information society pieces itself together within the interstices of the postindustrial society that it is apparently replacing. Here is a small random sampling of these challenges.

1. Because of its phenomenal speed with which an electronic environment is beginning to surround us, telecommuncations and the microcomputer, paradoxically, have become a part of the problem of building a better global society as well as a part of the solutions we seek.

2. Major "1984" Orwellian-style invasions of privacy have become technologically feasible.[14]

3. Because of universal TV, a whole society is obliged to see daily a parade of its blemishes. Social psychologists are asking seriously whether any society can stand such exposures.

4. While developments in telecommunications facilitate greater equality of access to education, we have yet to determine ways of achieving more equal outcomes.

5. The field of robotics, while it promises to improve production and improve our competitive position with industrial powers such as Japan and West Germany, also opens a Pandora's box of ills with temporary increases in technogenic unemployment as a distinct possibility.

6. We are threatened by the possible "seduction" of children and youth by TV[15] and perhaps by the electronic games that took in an estimated 38 billion quarters in 1981.[16] Postman cites a study which found that on

which found that on a given night at least 600,000 children of elementary school age watch the midnight-to-2 a.m. "Late, Late Movie." He also expresses concern regarding the sedentary, nonsocial nature of tele-viewing. Then there is the matter of sex and gore. Tovatt and DeVries (1972) pointed out that, even a decade ago, by age fourteen a child has witnessed at least 18,000 homicides on television. Explicit sex scenes and nudity probably would be so numerous as to defy an inventory!

Transitional statement. As noted earlier in this paper, many of the "technological developments and social changes" were concerned with certain aspects of what systems analysts refer to as the "total universe" that must be considered in making wise policy decisions to guide future thought and action. I now should endeavor to examine the eighteen selected outcomes attributed to vocational education in the present inquiry of the National Center.

Vocational Goal-Outcomes: Their Technosocial Interface

When the eighteen outcomes selected for the National Center study are examined in the light of probable educational futures, eight of the eighteen seem likely to be achieved. Three appear to have a less bright prospects, and seven are too close to call in view of the unsettled nature of contemporary social, economic, political, and technological conditions. The other eight clearly seem to involve appropriate outcomes.

The three least feasible will be examined first, namely, items three, five, and eleven. Then the seven that may prove suitable are scrutinized: four, six, seven, eight, thirteen, fourteen, and fifteen. Finally attention is directed to points one, two, nine, ten, twelve, sixteen, seventeen, and eighteen, which are deemed thoroughly feasible and appropriate.

It should be clearly understood at this juncture that neither the appropriateness nor the desirability of the eighteen outcomes is at issue. Rather, the points are examined with reference to the degree to which they are likely to be achieved readily in the troubled 1980s and the uncertain 1990s.

Bases for assessing the eighteen outcomes. Three bases were used when appraising the outcomes:

1. Probable future trends reflected in social indicators that are likely to exercise an influence on a given outcome

2. Subjective social/occupational consequence-analysis

3. Probability-difficulty analysis,[17] a three-step procedure roughly analagous to the triage concept[18]

Vocational outcomes that probably face an uncertain future. A scrutiny of the literature and publications pertaining to technofutures, sociofutures, and human futures (see the Additional References) led me to conclude, as noted above, that the following outcomes attributed to vocational education could become more difficult to realize in the short-range future than they were in the past:

(3) Trained workers for labor market needs
(5) Placement in a job related to training
(11) Enhanced leadership capabilities

As of the early 1980s there is reason to doubt that a crisply delineated picture of future labor market needs can be sketched. The extent of unemployment as of mid-1982 and ambiguity in government policies, substantial global military actions that threaten world peace and could lead to a military draft, and the extraordinary way in which the microchip and robotics are permeating the work place are examples of factors that could complicate a reading of labor market needs.

Placement in a job related to one's vocational training also faces a troubled future. Robotized assembly lines may mean that many of the jobless in automotive centers such as Detroit and their satellite communities, such as Kokomo and Anderson, Indiana, may not be needed in their former jobs. This problem situation spills over into decision making with respect to vocational training! A decade or more ago answers were easier to reach.[19] At the very least, as noted earlier, U.S. citizens' attitudes are being shaped by the media in ways that lead them to expect difficulty in deciding what jobs to pursue!

A recent inquiry funded by the National Education Association, one that I directed (1977), was concerned with reinterpreting the Severe Cardinal Principles (objectives) of Education: Health, Command of Fundamental Processes, Worthy Home Membership, Vocation, Civic Education, Worthy Use of Leisure, and Ethical Character. It is of more than passing interest to note that a majority of the nationally respected panel of over fifty personages participating in the study felt that "the problem (with respect to specific vocational skills training) in a changing society is to know that vocations are going to be required in the next 10 or 15 years " (Shane 1977, p. 48). A good general education was also deemed to be an increasingly important component in the teaching of specific vocational skills.

Item 11, "Enhanced leadership capabilities," seems open to some dispute because, while capabilities may be increased, the world is in such a state of turmoil that one is inclined to question what the opportunities may be like and where they may be found in the next twenty years. The quantium leaps made in siliconchip technology in ten short years, 1972-1982, suggest how yesterday's leadership capability based on knowledge could become obsolete unless personnel is methodically retrained or re-educated.

Outcomes that may prove suitable in the future. Whether workers will be more highly motivated in the future is difficult to forecast. Entitlement programs have reduced the threat of want that motivated many workers eighty years ago. Also, bright prospective workers may lack motivation as they realize that there may not be enough affluence to go around. The outcome remains in doubt.

The acquisition of useful occupational skills is also difficult to predict as an outcome of vocational education. This is because of the rapid change probable in employment due to the microchip.

Positive attitude toward work is closely related to the matter of motivation. Undoubtedly, motivated workers will have positive attitudes toward their jobs. But there is some question about the extent to which people will be motivated in years to come.

Increased productivity is generally forecast, but again, this depends upon whether the "de-industrialization" that has occurred in Britain spreads to the U.S.[20]

Increased potential for entrepreneurial activity is also too close to call at present. Various social decisions, not yet made, will tell what will happen.

Enhanced job enjoyment could come about, as a technological society facilitates production and provides greater leisure. Contrary opinion holds that technology will continue to dehumanize the work place and create dissatisfaction as a consequence. Finally, increased job satisfaction draws from me the same response that I made with respect to enhanced job enjoyment. It is difficult to have one without the other.

Eight outcomes that appear likely to be achieved successfully. There is little if anything in linear projections of future developments, or in cross-impact analyses, to suggest that eight of the outcomes attributed to vocational education are likely to be jeopardized.

(1) Increased awareness of the need for basic academic skills is now more widely recognized and stressed than at any time since the era of the Great Debate to which Bestor, Rickover, Flesch and others contributed in the early 1950s. For example, considerable contemporary future-oriented writing and conjecture deals with the need to counter the time-consuming and academically deleterious impact of TV.

(2) Satisfactoriness to employers may very well be increased as microcomputers begin to be used more skillfully in the classroom. In view of increased access to U.S. education by all socioeconomic groups, teachers seem to be reaching more students and helping them prepare vocationally.

(9) Development of safe work habits and techniques seems an attribute beyond dispute, but one that constantly must be refined in a complex technological society, since new developments may generate hidden hazards, such as the dangers of radiation associated with nuclear power plants.

(10) Increased earnings also would seem to be an attribute beyond reasonable dispute as of the moment. However, the relationship among increases in wages, in taxes, in withholdings, and inflation must be carefully assessed! Increased earnings do not necessarily mean increased purchasing power. Also, in view of the finite carrying capacity of the planet, projected population increases and pressure from less developed countries of the South for a larger share of material goods could sharply modify this outcome during the 1990s and beyond!

(12) Upgraded occupational competencies must be an outcome of vocational education or the field loses its meaning and direction. In addition emerging technofutures in America mandate upgraded competencies.

(16) Improved quality of work and of the work place should be an outcome, and, generally speaking, is properly attributed to the vocational field. However, educators must keep in mind that a variety of factors, such as worker morale, foreign competition, and employers' policies, can impair the best efforts of instructors in vocational education to enhance uniformaly the quality of work or the climate of morale in the milieu where work occurs.

(17) Retrained workers, or "retrofitted" workers (in the parlance of some futurist writers), may well prove to be one of the most vital outcomes of vocational education

Not only are vocational educators challenged to retrain workers displaced, for example, by robotics but they also have the task of determining how to cope with the need for qualified technicians and specialists in the realms where jobs are likely to increase rapidly in the late 1980s and thereafter. To illustrate, an article that appeared earlier this year speculated that present trends would lead to large numbers of jobs for such persons as (1) energy technicians, (2) housing rehabilitation specialists, (3) persons prepared to handle the disposal of hazardous wastes, (4) industrial laser process technicians, (5) robot production technicians, (6) personnel qualified as genetic engineering technicians, (7) bionic-electronic specialists, and (8) geriatric social workers.

Linear extrapolations of trends indicators such as the eight above are not invariably reliable, since we cannot count on a surprise-free future. At the same time, the importance of retraining programs seems assured, even though their precise nature is still in the process of being determined.

(18) Reduced dropout rate already has been achieved in the U.S.,[21] but more needs to be done to increase this outcome of vocational education. In view of eighteen years of academic score decline, persons who have remained in school have perhaps had too small an infusion of vocational preparation and, paradoxically, the basic skills' education that should accompany it.

As noted earlier, to retain its thrust at a time when the need for it is growing, specialists in vocational education should seek not only to study contemporary social-occupational indicators; they ought also to strive to determine future policy through "probability-difficulty" analyses, i.e., some outcomes are so probable that little increased effort will be needed to attain them. Other outcomes may prove so difficult (or costly) that their achievement could impair attaining other important outcomes.

As in the triage approach, choices need to be made to ensure the survival of the most viable of the outcomes of vocational education during an era in which the field is one of growing importance.

The information in figure 7 provides an overview of the outcomes supported by futuristic evidence.

Concluding Comment

Recently, James O'Toole, professor of management in the U.S.C. Graduate School of Business Administration (1981), devised

FIGURE 7
FUTURISTIC EVIDENCE TO SUPPORT
SELECTED VOCATIONAL EDUCATION OUTCOMES

Outcome Number	Yes	No	U*	Outcome Number	Yes	No	U*
1	X			10	X		
2	X			11		X	
3		X		12	X		
4			X	13			X
5		X		14			X
6			X	15			X
7			X	16	X		
8			X	17	X		
9	X			18	X		

*U = Unclear

four scenarios in which he speculated about "Workplaces of the Future."

They included: (1) the meritocratic, (2) the behaviorist, (3) the entitlementarian, and (4) the humanistic work place. His conjectures regarding alternative futures that will be determined by human judgment and decisions bring to mind a quotation with which to close my examination of the eighteen outcomes on which the National Center project concentrates. This is a statement from the historian, Barbara Tuchman. Speaking of trends, she notes that students of the future often work by extropolation. The "doomsayers" in particular, forget, Tuchman (1973) tells us

> that the doom factor sooner or later generates a coping mechanism. I have a rule for this situation. . . . which is absolute: You cannot extrapolate any series in which the human element intrudes; history, that is, the human narrative, never follows and will always fool, the scientific curve. (p. 46)

As we look toward vocational futures and vocational outcomes, we constantly must keep our linkages with the ways in which people determine "human futures" in the world of work; futures that mediate whatever impacts that are initially created, by scientific and technological breakthroughs, in the world of work. In short, trends do not forecast human destiny.

Notes to Text

1. As used here and hereafter, primary jobs refers to such endeavors as farming or mining, secondary to manufacturing and distributing, tertiary to information handling jobs.

2. The sources of turbulence cited in part are adapted from a study funded by the Lilly Endowment, Education for a New Millennium (1981) conducted by the writer. The inquiry was based on 132 international interviews with outstanding scholars in the natural and social services-- persons suggested by their peers as outstanding in physics, chemistry, the life sciences, economics, sociology, and so on.

3. For a sampling of transformationalist writings, cf. reference entries for Lester R. Brown, W. Jackson Davis, and Barbara Ward.

4. For statements supporting the reindustrialist view, cf. bibliographic entries for Daniel Bell, Herman Kahn, and Julian Simon.

5. Cf., Amitai Etzioni, "Reindustrialization: View from the Source," The New York Times, 29 June 1980, 16f, and "Reindustrialization of America," Editors of Business Week, Business Week (Special Issue), 30 June 1980, pp. 55-146 (also available (1981) in book form from the McGraw-Hill Book Company, Inc.).

6. An article in Time 19 July 1982 notes, "Since 1960 in the major industrial nations the proportion of gross national product consumed by government has gone from 28 percent to 38 percent" (p. 54).

7. Cf., Landon Y. Jones, Great Expectations: America and the Baby Boom Generation. New York: Coward, McCann, and Geojehan, 1980. Jones dwells on declining expectations and growing competitiveness of the generation. Also cf., Philip G. Zimbardo, "The Age of Indifference," Psychology Today, 14 (August 1980): 71-76.

8. Taped interview by author with Lynton. Keith Caldwell, Distinguished Professor of Political Science; Indiana University, Bloomington, in 1981.

9. During several years of intermittent work in Paris on a multinational UNESCO panel, the writer found that South rather than Third World was the term preferred by the representatives from the less-developed nations.

10. Any approach to a new economic order is further complicated by the burden of South, or Third World, debt. Last year at a Libreville, Gabon, conference it was announced that these debts had passed the $600 billion mark and were increasing by $100 billion per year. (Cf., The London Daily Telegraph, 19 May 1981, for details.) The Soviets' East European satellites also owe between $60 and $80 billion (estimates vary) to the West's governments and banks. Poland alone owes $25 billion!

11. The forecast of unemployment for year's end in 1982 was: Britain, 12.6 percent; France, 9 percent; Italy, 11 percent; W. Germany, 7.5 percent; U.S., 9.25 percent. (Time, 19 July 1982, p. 56.)

12. The Wall Street Journal, 6 July 1982, printed an even more recent estimate suggesting that Russia has now exceeded the U.S. in its arms sales.

13. The figures cited are from a cover story on the world armaments race in Time 26 October 1981, p. 28 ff.

14. U.S. News and World Report, 12 July 1982, presents an overview of developments in "Report on Privacy," pp 33-37. Also cf., Simon Nora and Alain Minc, The Computerization of Society: A Report to the President of France. Cambridge, M.I.T. Press, 1980.

15. For a provocative treatment of the topic, cf., Neil Postman, The Disappearance of Childhood. New York: Delacorte Press, 1982.

16. The British Medical Journal has even described rare game-related cases of epileptic seizures, including a grandmal attached sustained by a seventeen year old. Apparently the epilepsy attacks were triggered by prolonged exposure to the rhythmic light stimulation of video games.

17. The interactive "probability-difficulty" analyses refer to an examination of the likelihood that some of the eighteen outcomes will probably come about automatically with little or no effort required on the part of vocational educators, hence need little nurturing. Others may prove to be so difficult, expensive, or require so much effort to attain as to suggest that the time is not yet ripe for their achievement. (Cf., 18 below.)

18. Triage is a French term that originated in the Napoleonic Wars but did not gain wide currency until World War I. For further details on Triage, see Hardin, G., Promethean Ethics: Living with Death, Competition, and Triage. Seattle:

University of Washington Press, 1980. It involves classifying wounded troops into three groupings:

a. Those who probably won't survive and on whom care shouldn't be wasted

b. Those "walking wounded," who presumably will survive albeit sometimes painfully, hence can get by withou prompt treatment

c. The critical middle group members, who will live if given treatment and care but who will perish without it

Vocational education, in my analogy, should, in the coming decade, concentrate on the vocational education equivalents of "type c" outcomes after submitting the eighteen to probability-difficulty analyses.

19. In recent months speculation about the impact of robotics has triggered a number of cover stories. Cf., Jack Fincher, "The Robots Are Coming, the Robots Are Coming," Next 1 (May-June 1980):30-38; "The Robot Revolution," Time 8 December 1980, pp. 72-73; "The Coming Industrial Miracle: (robotics and computers), U.S. News and World Report, 30 November 1981, pp. 52-60.

20. For an excellent discussion, cf., Kimon Valaskakis, "Post-Industrial or Re-Industrial: Two Interpretations of the Information Revolution." World Future Society Bulletin, 16 (July/August 1980):1-6.

21. A College Board study of academic score decline completed in the late 1970s not only took note of consistently falling scores after 1964; it also noted that the decline could, in part, be attributed to the increased holding power of U.S. public schools. For details, cf., an interview with Willard Wirtz, chairman of the CEEB Panel, on score decline, "The Academic Score Decline: Are Facts the Enemy of Truth?" Phi Delta Kappan, 59 (October 1977):83-86; 145-146.

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QUESTIONS AND ANSWERS ON
"TECHNOLOGICAL DEVELOPMENTS AND SOCIAL CHANGE:
SOME IMPLICATIONS FOR VOCATIONAL FUTURES IN EDUCATION"

Question: There seems to be a logical inconsistency in the rating of some of the outcomes. For example, the outcome "trained workers for labor market needs" was rated "no", "acquisition of useful occupational skills" was rated "unclear" or "uncertain;" "upgraded occupational competencies" was rated "yes"; and "retrained workers" was rated "yes." What are the assumptions on which these ratings are made?

Shane: With regard to what you deemed to be inconsistency in some of my ratings let me react as follows:

1. "Trained workers for labor market needs." I labeled this a "no" because I think the consensus among futurists is that rapid developments, particularly in microelectronics, make it difficult to forecast precisely what future needs might be.

2. With respect to my rating of "unclear" for "acquisition of useful occupational skills," I again felt that it was difficult at this juncture to understand whether this forecast outcome could be attained because of changes and shifts now occurring with respect to the nature of the work force likely to be needed in the future.

3. With respect to the items "upgraded occupational competency" and "retrained workers," I think that they are definitely vocational education outcomes likely to emerge in the future. Undoubtedly the electronic milieu will require greater competency for many workers--and those displaced, for instance by robotics, obviously will need retraining.

To summarize, I think there are very important roles for vocational education, but at present their precise nature is not yet fully determined. (After all, it was only eight years ago when the microchip first became commercially available in the form of the modern microprocessor.) Certainly, in this sense, my answers are not inconsistent. Rather, they were mediated by uncertainty and the rapidity of changes likely to occur in the world of work.

NOTE: Dr. Shane was unable to participate in the Working Conference. He responded in writing to the questions generated by buzz groups at the Working Conference.

Question: How will the changing family structure in the future impact upon vocational education?

Shane: I think several examples can be cited:

1. With well over 60 percent of U.S. women employed, one third of whom have children of five or under, there already is a substantial need for child-care personnel, since over thirty of our childeren out of 100 are in nursery education or custodial care centers, up from 10 percent a decade or two ago.

2. Working women, many of whom are mature and skilled, are taking over a number of the jobs once open to less well-trained men, as well as jobs for which teen age youth might have been hired in the 1950s and 1960s, thus creating a need for additional training or "retrofitting" for those who are out of work.

3. Many family members are living longer, with men who reach sixty-five having a fourteen-year life expectancy and women having sixteen- to eighteen-year expectancies. Many retirees are both willing and able to work and would probably welcome adult or continuing vocational education. Two exemplars of current and future opportunities are geriatric nursing skills for "younger" senior citizens or the rudiments of parent sitting (analogous to baby sitting) with frail oldsters. Space constraints discourage more examples, but there are many of them.

Question: What is the future potential for entrepreneurship?

Shane: The potential for entrepreneurial activity in the future may well develop along two diverse lines:

1. The first of these is illustrated by opportunites that have become increasingly visible as a result of the electronic milieu of the information society, which--broadly conceived--provides jobs for about 50 percent of the U.S. workers as against 29 percent in services, 17 percent in industry, and 4 percent in agriculture as of 1981-1982. Patently, there is a need for the vocational preparation of persons with the performance skills and knowledge that the "electronic surround" mandates. Those with the personal-vocational prerequisites are not only "making it big," for example, the President of the Apple Computer complex and some of even the very young with programming skills, are likely to have an even greater worldwide theater in the late 1980s.

2. For antithetical reasons, there is room for entrepreneurs with skills that are needed in coping with the twofold challenges of robotics: improving robots, especially in view of

Japan's eleven-to-three lead (1981) in their use on assembly lines and dealing with the retraining of those unemployed by cybernetic developments. Current estimates suggest that the jobs of some 50 percent of our unemployed auto workers may never be filled if current trends continue!

Question: One of the preceding papers provided a historical perspective for vocational education. The author of the historical paper seemed to be saying that we need to maintain a vocational education that is reasonably job specific and fairly long range. You seem to be saying that vocational education should be more holistic and more short term. Please comment on this conflict.

Shane: I presented the holistic and relatively short-range antithetical view that you mentioned as a result of findings from three future-oriented studies which I directed: The Educational Significance of the Future (USOE 1973), Curriculum Change Toward the 21st Century (NEA 1977), and Education for a New Millennium (sponsored by Phi Delta Kappa and funded by the Lilly Foundation Endowment, 1981).

The majority of the nearly 300 national and international scholar-consultants and panelists who participated in the three inquiries expressed the views below, views that are quotations excerpted from the "Vocation" section, pp. 48-49, of Curriculum Change toward the 21st Century:

1. The problem with regard to specific vocational skills training in a changing society is to know what vocations are going to be required in the next ten to fifteen years.

2. A good general education should then be followed by teaching of specfic skills.

3. The habit of lifelong learning is now, in a sense, a vocational skill.

4. Most vocational education can best be acquired outside of school.

5. Competence in problem solving has now become a requisite for vocational efficiency.

6. We need a "new vocational breed" that sees the implications in their vocations for combating pollution and other ecological problems.

7. Schools should focus on the general requirements of all vocations and serial or recurring preparation.

8. Vocational preparation must avoid locking people in the wrong jobs (for them).

Diverse other points are made in the report and are analagous to those cited.

Question: In the last decade, 80 percent of the new jobs have come from firms that have 100 or fewer employees. We also know that most industrial training occurs in companies that have 500 or more employees. What are the implications for vocational education if most of the labor force expansion occurs in firms that cannot afford training departments?

Shane: One suggestion: During extensive visits overseas (seventy ocean crossings to over fifty countries since 1960), I have noted "diploma courses" offered in a number of schools, particularly in industrialized nations of the West. Among them are, for instance, banking, motor repair, hotel management, basic nursing, and textile courses. The training runs two years on the average and concentrates in a highly respected and "saleable" diploma. The Central Polytechnic of Central London, near Oxford Circus (where I lectured last year), is a specific example of what I am describing. We might help meet small firms' training needs by creating a uniquely American approach for our employers!

Question: One of the qualities I noticed in the paper was a kind of either/or stance. You seem to be saying that in many respects, the future is going to be shaped by whichever ideology wins. In this country it seems that competition between ideologies, ideas, or practices moves us to a more moderate course of action and potentially more moderate speed of change. What will be the result of some of this moderation?

Shane: You make interesting points with which I respectfully disagree. Most futurists feel that, in the last analysis, sources of socioeconomic, political, and international turbulence will assume an increasingly dichotomous form--for example, as the proponents of growth, such as economist Julian Simon, collide with those who see a need to return to a low energy, more labor-intensive era featuring "voluntary frugality" as proposed by Lester R. Brown (Brown 1981, Simon 1981, Shane 1981)

The growing immoderate ideological competition is reflected in increasing tensions in environmentalism, U.N. conflicts over ocean-floor treaties, recent horrors ranging from San Salvador to Lebanon, the $38 billion arms trade as of 1981, competition from Japan and the "mini-Japans" (Taiwan, South Korea, Hong Kong, etc.), Russo-American relations, special-interest and single issue groups in the U.S., and many, many more.

APPENDIX A

WORKING CONFERENCE AGENDA

WORKING CONFERENCE
OUTCOMES FOR VOCATIONAL EDUCATION

August 19 and 20, 1982

Room 1-A

The National Center for Research in Vocational Education
The Ohio State University
Columbus, Ohio

Conference Objectives

- To critique papers on evidence supporting or rejecting specified outcomes of vocational education.
- To identify major evidence either supporting or rejecting the eighteen outcomes.
- To specify those outcomes most appropriate for vocational education.

Agenda

Thursday, August 19, 1982

Conference Moderator - Floyd McKinney

1:00	Welcome	Robert E. Taylor
	Introductions	Floyd McKinney
	Conference Objectives, Agenda, and Procedures	Floyd McKinney
1:20	Paper - Philosophy	John Thompson
1:30	Buzz Groups	Participants
1:40	Questions and Answers	Buzz Groups and and John Thompson
2:00	Paper - Economics	David Stevens
2:20	Questions and Answers	Participants
2:40	Break	
3:00	Paper - Sociology	Mary Malone
3:10	Buzz Groups - Sociology	Participants

3:20	Questions and Answers	Buzz Groups and Mary Malone
3:40	Paper - Psychology	John Crites
3:50	Buzz Groups	Participants
4:00	Questions and Answers	Buzz Groups and John Crites
4:20	Recess	

Friday, August 20, 1982

8:25	Recap and Goals	Floyd McKinney
8:30	Paper - History	Rupert Evans
8:40	Buzz Group - History	Participants
8:50	Questions and Answers	Buzz Groups and Rupert Evans
9:10	Paper - Futurism.	N. L. McCaslin (for Harold Shane)
9:20	Buzz Group - Futurism	Participants
9:40	Questions and Answers	Buzz Groups and N. L. McCaslin
10:00	Break	
10:15	Identification of Major Evidence Supporting and/or Rejecting Specific Outcomes	
	Work Group A	Karen Behm
	Work Group B	Ida Halasz
	Work Group C	Patricia Fornash
11:15	Work Group Reports	
12:00	Ranking of Outcomes	Conference Participants
12:30	Conference Synthesis.	Linda Lotto
1:00	Adjournment and Catered Lunch	

BUZZ GROUPS

Objective: To identify and develop questions concerning the information presented in the papers

Buzz Group - A

McCaslin - Leader
- Adams
- Behm
- Cross
- Drake
- Evans
- Santoro
- Stevens
- Stevenson
- Thorogood
- Lotto

Buzz Group - B

Halasz - Leader
- Bennington
- Crites
- Fornash
- Franchak
- Malone
- O'Reilly
- Phelps
- Richardson
- Thompson

WORK GROUPS

Objective: To identify the major evidence across all papers supporting or rejecting the outcome

Behm - Leader
- Crites
- Malone
- Phelps
- Santoro
- Stevenson

Halasz - Leader
- Adams
- Bennington
- Drake
- Evans
- O'Reilly
- Thorogood
- Lotto

Fornash - Leader
- Cross
- Franchak
- Richardson
- Stevens
- Thompson

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APPENDIX B

OUTCOMES SELECTED FOR STUDY

OUTCOME: INCREASED AWARENESS OF NEED FOR BASIC ACADEMIC SKILLS

I. Explanation: Students participating in the application of mathematics, reading, and writing in a work related experience increases student awareness of the need for learning these skills.

II. Examples of outcome attainment: Increased participation in basic academic skill courses.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: SATISFACTORINESS TO EMPLOYERS

I. Explanation: Participation in vocational education results in employers considering former vocational education students to be well trained and prepared for employment.

II. Examples of outcome attainment: Higher employer rating of former vocational education students.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: TRAINED WORKERS FOR LABOR MARKET NEEDS

I. Explanation: Participation in vocational education assists individuals in acquiring occupational skills necessary to fill the employment needs of business and industry.

II. Examples of outcome attainment: Greater proportion of skilled labor demand met by institutionally trained workers.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: MOTIVATION FOR EDUCATIONAL AND OCCUPATIONAL ACHIEVEMENT

I. Explanation: Participation in vocational education programs increases and strengthens student incentive for educational and occupational achievement.

II. Examples of outcome attainment: Increased school attendance, grades, graduation rates, and job promotions.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: PLACEMENT IN A JOB RELATED TO TRAINING

I. Explanation: Students completing a vocational education program are employed in jobs that are related to their training.

II. Examples of outcome attainment: Higher percentage of former students in a job related to their training.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: ACQUISITION OF USEFUL OCCUPATIONAL SKILLS

I. Explanation: Students in vocational education develop those occupational skills necessary to perform adequately the job for which training was provided.

II. Examples of outcome attainment: Increased performance on a valid sample of cognitive, affective, and psychomotor competencies that entry-level workers are required to do on the job.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: POSITIVE ATTITUDE TOWARD WORK

I. Explanation: Participation in vocational education results in former students having a positive feeling for their work and respect for the rules of the work place.

II. Examples of outcome attainment: Positive attitudes of former students towards their work. Fewer absences or less tardiness from work. Need for less supervision.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: INCREASED PRODUCTIVITY

I. Explanation: Participation in vocational education results in former students being more productive workers than those individuals who did not participate in vocaitonal education.

II. Examples of outcome attainment: Higher output by former vocational education students.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: DEVELOPMENT OF SAFE WORK HABITS AND TECHNIQUES

I. Explanation: Participation in vocational education results in workers' learning procedures and techniques needed to ensure safety on the job.

II. Examples of outcome attainment: Fewer accidents on the job.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: INCREASED EARNINGS

I. Explanation: Participation in vocational education increases the wages or salaries of workers.

II. Examples of outcome attainment: Higher wages or salaries for former vocational education students.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: ENHANCED LEADERSHIP CAPABILITIES

I. Explanation: Participation in vocational education enhances an individual's capacity to be a leader.

II. Examples of outcome attainment: Greater participation in community affairs and in roles requiring leadership capabilities.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: UPGRADED OCCUPATIONAL COMPETENCIES

I. Explanation: Students in vocational education acquire skills that are needed to stay current or advance on the job.

II. Examples of outcome attainment: New skills acquired.

III. Appropriate for:

A. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Adult, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: INCREASED POTENTIAL FOR ENTREPRENEURSHIP

I. Explanation: Skills acquired in vocational education increase the potential of former students to organize, operate, and assume the risk for business ventures.

II. Examples of outcome attainment: Increased number of former vocational education students become entrepreneurs.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: ENHANCED JOB ADVANCEMENT

I. Explanation: Participation in vocational education results in workers having the skills and abilities that will enhance their prospects for advancing on the job.

II. Examples of outcome attainment: Former vocational education students increase their rate of advancement on the job.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: INCREASED JOB SATISFACTION

I. Explanation: Participation in vocational education provides students with cognitive, affective, and psychomotor competencies that contribute to their fulfillment or gratification on the job.

II. Examples of outcome attainment: Higher job satisfaction of former vocational education students.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: IMPROVED QUALITY OF WORK

I. Explanation: Participation in vocational education results in former students being able to do excellent work in the jobs for which they were trained.

II. Examples of outcome attainment: Increase in new processes or procedures developed by former vocational education students and adopted by business/industry.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: RETRAINED WORKERS

I. Explanation: Vocational education provides programs for those persons who need to acquire skills for a new occupation.

II. Examples of outcome attainment: New skills acquired.

III. Appropriate for:

A. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Adult, including the aged, disadvantaged, handicapped, minorities, and women.

OUTCOME: REDUCED DROPOUT RATE

I. Explanation: Participation in vocational education results in secondary students and postsecondary students remaining in school until they have achieved their goals.

II. Examples of outcome attainment: Lower percent of secondary vocational education students leave school before graduation. Lower percent of postsecondary students leave school before achieving their goals.

III. Appropriate for:

A. Secondary, including the aged, disadvantaged, handicapped, minorities, and women.

B. Postsecondary, including the aged, disadvantaged, handicapped, minorities, and women.